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NEW SCIENCE AND OLD PHILOSOPHY

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(With comments by the Chairman, the Bishop of Birmingham)

CAST a backward glance over the last hundred years and it will be seen at once where the greatest advance has been. We cannot claim, I fear, that it has been in philosophy. Nor yet has it been in the sphere of religion; nor in politics; nor in the arts. Plainly enough, it is in science that this age has excelled; and in industrial production through the help of science.

In every direction the frontiers of knowledge have been enlarged. Astronomy and geology, physics and chemistry, all the branches of biology, have marched into new fields and established themselves there. The effect upon thought in general has been profound. The discovery in the last century that evolution is the process dominant in nature, had a revolutionary effect. In this century the theory of relativity, the quantum theory, the discovery of radio-active substances, and the unveiling of the structure of the atom—perhaps the most marvellous achievement yet of the mind and hand of man—these are powerfully affecting some of our fundamental ideas. The new science has undermined all the orthodox theologies. And it seems to be ousting the old philosophies. The present generation does not give its mind to Plato or Aristotle, to Kant or Hegel. It breathes a different intellectual atmosphere.

Except in that one sphere of theoretical and applied science, this age knows itself to be a time of confusion. And in the confusion there grow up on every hand—as always in such times—a plentiful crop of weeds, rank and noxious; in government and in morals, in literature and the arts.

But we seem to see that, gradually, philosophy is adapting herself to the new situation. She is learning to breathe the new atmosphere. She is leaving a period of barren dialectics, of elaborate, intricate reasoning; when each subtle logician in turn appeared quite convincing until he was superseded by the next logician, a shade more subtle still. Now philosophy is beginning to recognize, however slowly and reluctantly, that the discoveries of the new science must transform her own ideas from the bottom up. Separated from science, is philosophy anything more than mere speculation and assertion? Based upon science, drawing its materials from the results of observation and experiment, while building on the plans and with the tools of reason, philosophy may become a solid edifice in which the soul of man may dwell securely.

My address this evening will offer an example of the approach along these lines. Rashly venturesome, I will take one of the oldest of philosophic problems—the question What is Reality?

Consider first the aspect of the universe as we see it in ordinary life. There are objects all about us. They are solid; they have size and weight. They have colour, smell, and other qualities. The rose is red and the grass is green. A fire is hot and ice is cold. The sun rises and sets, and in the sky at night there are some thousands of little stars that twinkle. There are wind and weather, and "the wind bloweth as it listeth." Men act as they choose, according to their own free will. They are subject to chances; one man is lucky and wins a prize in a lottery, another is unlucky and is killed in a railway accident, and it is pure hazard which is which. In this world time is one thing and space is another; the clock and the calendar tell us about time; the yard-stick and the map tell us about space; and the two are quite distinct. This is the world as perceived for hundreds of thousands of years by primitive man; as perceived now by the child, and, in its main features, by animals.

Now consider the aspect of the universe as it has been revealed, so far, by physical science.

Material objects consist of molecules which are atoms combined together. Atoms are of various kinds; there are ninety-two kinds, so far as we are aware; and these we term the chemical elements. Each atom is a complicated system of electrical units. There are four kinds of units so far discovered, which have been named protons, electrons, positrons, and neutrons. Atoms may contain any number, from one to ninety-two, of electrons; the number of electrons gives to any class of atom its specific character as a chemical element. The electrons are engaged in some kind of incessant motion, with frequencies of the order of thousands of billions in a second.

Besides matter, there is radiation. The universe is full of electro-

magnetic waves. Those which have so far been discovered range in length from about a forty-thousandth of a millionth of a millimetre, at one end of a continuous series, to several kilometres at the other end. We detect the shortest as the "gamma rays" emitted by radio-active substances. Next to them in the series are the X-rays used in clinical investigation. Then come the rays of the ultra-violet spectrum; next the various rays of light visible to us, from violet to red; then the infra-red rays. Finally come the Hertzian waves, which are used in broadcasting; they range from about one-tenth of a millimetre, from crest to crest, to several kilometres. Some of these waves carry what we call radiant heat; but there is also material heat, which is due to the motion of molecules. Sound results from wave-movements of atoms in the air. Smell is due to particles of matter shot off through the atmosphere.

The scale of terrestrial life is about midway between the scale of the electrons and the scale of the stars. The telescope shows us about a thousand million separate stars, each more or less comparable, in size and luminosity, with our sun. These are within the galaxy of which the solar system forms part, and there are many millions of such galaxies. The light of the sun, travelling at the rate of 186,000 miles a second, takes eight minutes to reach us. The light from the furthest galaxies so far perceived has taken about a hundred and fifty million years to reach us. In the universe as so presented there is no possibility of separating space and time. Motion is an essential feature of every minutest part; the atom and radiation involve incessant movement. Motion consists in being here at this moment and there at that moment. You cannot separate the "here and there" from the "then and now." If you try to do so, if you arbitrarily take a space without its time or a time without its space, you contradict nature. In the universe presented by physical science there is only a single space-time.

In that world every event is the consequence of previous events; there is no such thing as chance; everything that happens, everything that is done, is the effect of a combination of a multitude of prior causes. (This principle has been challenged in recent years by Heisenberg, with the support of Eddington, Neils Bohr, and others. They have propounded a "Principle of Indeterminism," sometimes termed "Principle of Uncertainty," and hold that hazard reigns at the heart of nature. This theory has been expanded in a manner that is singularly unconvincing, and has not been able to withstand the criticisms of Einstein, Planck, and other eminent physicists.) All phenomena, whether the movement of the stars or the blowing of the wind, are subject to Causality and to the Law of the Uniformity of Nature. Like causes always produce like effects.

Such then is a second aspect of the universe. It is a materialist

aspect. There was a time when many scientists were content to rest there. They anticipated that further research would bring into the same frame all the phenomena that still remained outside, especially the phenomena of Life and Mind.

I remember attending the meeting of the British Association of 1912 and hearing the Address of the President of that year, Professor Schäfer, the distinguished physiologist. In the course of it he said: "The elements composing living substance are few in number. . . . The combination of these elements into a colloidal compound represents the chemical basis of life; and when the chemist succeeds in building up this compound, it will without doubt be found to exhibit the phenomena which we are in the habit of associating with the term 'life.' The above considerations seem to point to the conclusion that the possibility of the production of life, i.e. of living material, is not so remote as has been generally assumed." There are few who would use that language to-day. The view now predominant is rather that which is held by Professor J. S. Haldane when he says, in his recent book, *The Philosophy of a Biologist*: "No degree of physical and chemical complication brings us in any way nearer to the phenomena of life or conscious experience." A dead animal, or a dead cell, has the same chemical composition, so far as we know, as it had a little while before, when it was alive; but it is essentially different. The point was clearly expressed by Professor Wildon Carr. He wrote: "A material thing, say a billiard ball, is what it is in such a place at such a moment; it is altogether present whenever and wherever it is. A living thing, a germ, or a seed, an animal or a person, is never all that it is in any place at any moment. Its reality is not its actuality, but its potentiality. At every moment it is more than it actually is at that moment. An acorn is the potentiality of an oak-tree even though it may be crushed under foot and never develop its nature. The most exhaustive description of the constituent molecules, atoms, electrons, and the completest history of their assemblage, will not express the reality of the acorn. The chemist in his laboratory might conceivably assemble and fit into their exact order all the actual constituents of the acorn, but to synthesize a real acorn he would need to create its past and endow that past with a directing power to determine its future. This is the great distinction between the living and the non-living; there is no more in the non-living than its actuality; in the living there is more than its actual reality; its reality is its potentiality."

A magnet is held over a needle and the needle jumps to the magnet; that is a purely mechanical phenomenon. But watch a chess-player cogitating for half an hour whether he shall move a pawn one square forward or the queen two squares back, and finally

deciding for the one or for the other; can that process, by any refinement or elaboration, be held analogous to the jump of the needle? Or imagine a dramatist sitting down to write his next scene, or a mathematician thinking out the solution of a problem, or a violinist playing an air from memory—there is something essentially different there from anything which physical science can describe. The gardener is different from his spade, not only in degree, but in kind.

So there is a third aspect of the universe, besides the ordinary aspect, and the material aspect revealed by physical science. There is a vital, mental, psychic aspect—call it what you will.

Let me pause at this point. From this survey, so far as it has yet gone, certain things will be clear.

The first is that it is one and the same world with which we are dealing. When we speak of the everyday world of common sense being different from the world of science or from the world of the mind, we are obviously using merely a figure of speech. There are three aspects of the same world, and not three different worlds.

I may say "the rose is red." Or I may say "the atoms forming part of the surface molecules of the rose are of a kind which absorb the greater part of any ray of white light that falls upon them, and reflect that part of the ray which has a wave-length of about one-eighty-thousandth of a millimetre; when a group of reflected rays of that wave-length falls upon the retina of a human eye, it passes through some of an assemblage of about half a million 'rods and cones,' and then affects some among the nine thousand million neurons which make up the brain behind the eye; in doing so it gives rise to a perception which we name in language by the word 'redness.' " The first statement is simpler than the other, but both describe the same thing.

Every sensation that we have is transmitted electrically. Physiologists are able to time and to measure the electric impulses which pass along the nerve fibres. Anyone who has survived being struck by lightning, or anyone who has received a mild electric shock along his arm, will not doubt that the world of ordinary life, the world of the electron, and the mental world are one and the same. So also anyone who listens to a wireless broadcast of speech or music.

It is the same with regard to our current notions of space and time and the physicist's conception of an indivisible space-time. To give an example: I may propose starting on a motor tour in Scotland next Tuesday. Or I may change my mind and say that I shall start the tour in Scotland next Wednesday instead; or in Wales, instead of Scotland. The day and the place seem to be quite

independent, and either can be changed without reference to the other. Nevertheless, the very existence of Scotland, or of Wales, depends upon the continuity of the mountains, the valleys, the fields, the towns of those countries through a succession of Tuesdays and Wednesdays. And there could be no Tuesdays or Wednesdays unless something existed somewhere, in Scotland or Wales for example, at those times. There cannot be a Scotland at no time, or a Tuesday nowhere. The motorist must recognize that when he starts for his tour, he does really set off into the space-time of Einstein.

So again with regard to the free-will of the ordinary world and the determinism of science. Both may be facts. If we consider only the person who is about to take some action—if we start from that point—we see that the choice of action is due to a free exercise of his will. But if we go further back, if we ask, What is this Personality, what is this Will, that choose and act?—we see at once that they are themselves determined by prior causes. I choose freely between this and that, but my choice depends upon my bodily structure and my character. The "I" that chooses, my body and my character, are the outcome of prior causes which are uncountable in their number and infinitely complex in their mutual interactions. They are the causes that have produced this earth, this nation, my family, my environment. I myself am the outcome of these. If they had been different, I should be in some degree different; my body and my character would be different, and the actions that I would choose to do would be different in consequence. My own personality, and my will that chooses, are as much the product of causes as anything else. The facts that many of the causes operate from within and not from without, and in the mental, not in the material, sphere do not make them any the less causes, or in any way affect the issue.

So also with reference to chance. From the standpoint of the individual it is pure luck whether his ticket in the lottery wins a prize or not, whether he is, or is not, in the train and in the carriage where people are killed in a collision. For him it really is mere chance and nothing else. Yet an omniscient mind, which knew all the prior circumstances in each case, would know which man was to win the prize and which be killed in the accident. The science of statistics; the general uniformity, year by year, of the figures of murders, suicides, accidents, diseases; the fact that, when exceptional circumstances are present, that uniformity is modified—show conclusively that what is sheer chance to the individual is compatible with the Law of Causation working in the community.

The second conclusion which, I submit, is to be drawn from our survey, is that all these aspects of the universe equally present reality. But this has by no means been the conclusion generally accepted by philosophers.

It was discovered centuries ago that, underlying the world as known to primitive man and as perceived by the child or by the animal, there was another world—to use the customary figure of speech. This was gradually revealed; principally through the invention of the glass lens, and its use in the telescope and microscope, and of the prism and its use in the spectroscope; later by the invention of electrical and radiological instruments. Thereupon it was generally assumed that this must be the true world, superseding the other. A distinction was drawn between appearance and reality; the old world of common sense was mere appearance, the new world of science was reality. But those philosophers who, long before, had realized that there was a mental element in the universe, regarded reality, as so described, also as illusion. The mental element, or the world of ideas as Plato termed it, that alone, they held, was ultimate fact.

It is difficult to find a reason for this mutual exclusiveness. Is it anything more than an arbitrary assumption? Why should it be supposed that what is newly discovered is necessarily more real than what is familiar? Or that reality is to be found only in what are called "ultimates"? Why should the electron be regarded as more real than the atom, or the atom than the solid object? The world of ordinary experience is not an illusion because it is built up of atoms and electrons, any more than a house is an illusion *qua* house because it is made of bricks, or a human being because he is composed of cells of protoplasm.

I cannot walk through a wall; the wall is "solid" in relation to my body. That is fact; that is reality. It is not made less so by the other fact that a wireless ray from a broadcasting station can pass through the wall as if it was not there, and actuate a portable wireless set in my room. The solidity of the wall, for me, is not illusion merely because it is not solid to the wireless ray. Nor does the fact that in the brain of the chess-player there is some process going on which is not material in its character, render the material chess-board and chess-men mere appearances.

We may make mistakes. We may assume that the earth is fixed and the sun moves round it. Or when we see part of a stick refracted in the water we may think that the stick is bent. Or there may be actual illusions—dreams, hallucinations. But none of these affect the philosophic issue as to the nature of reality. When Shakespeare wrote, "We are such stuff as dreams are made on," he wrote good poetry but bad philosophy.

It is often assumed that the real must be single, ultimate, and absolute. But why that assumption? Why should not reality also be relative?

A powerful school of philosophy has declared that because objects are known to us only through our senses, directly or indirectly, and can be perceived only by our minds, we can have no assurance that they possess intrinsic reality; they may be no more than constructs of our minds. I cannot, of course, enter here into the general problem of epistemology. I would only submit this one observation, which presents itself as obvious as soon as we begin to use the conclusions of physical science as premisses in philosophy. It is certain that the universe existed when there were no human minds; the ray of light from a distant star, which started on its journey a hundred million years ago, is enough by itself to prove that, to say nothing of the teachings of geology. It follows that the universe cannot be merely the construct of human minds. Whether the actual impressions made by the objective world upon our minds correspond with its intrinsic reality we cannot tell; but that is no reason for rejecting the conception of reality itself.

Philosophy is doomed to sterility if it accepts the course of reasoning which says—any conception of reality which is incomplete must be ruled out; human knowledge is of necessity incomplete; therefore human knowledge can give us no conception of reality. That is equivalent to saying, "What I know cannot be real for the very reason that I know it." Knowledge and reality are thereby placed in two different spheres with no possibility of communication between them; and philosophy, if it does that, can only itself retire, as gracefully as possible, from the scene, having ruled itself out as well as reality. From such an inglorious fate we may be saved by accepting the principle that reality also is relative. The bee buzzing on the window-pane finds it solid; to the ray of light passing through it is not. The impenetrability is real in the one case, the penetrability in the other. Thought is as real as matter, and matter as thought. The ideas in the mind of the architect, from which springs the design of the house, are not less real, nor more real, than the house itself.

Let me summarize the position as so far presented. The universe is seen under various aspects; for convenience they may be described as those of ordinary life, of physical science and of mentality. There is only one universe, so that if there seem to be contradictions between one aspect and another that must be due to mistakes in apprehension on our part. This is substantially the doctrine of Spinoza. Summed up by Sir Frederick Pollock, in his book on the Life and Philosophy of Spinoza, it is expressed as follows: "There

is not a world of thought opposed to or interfering with a world of things; we have everywhere the same reality under different aspects. Nature is one as well as uniform."

We may go on to say that reality, as human minds can conceive it, is not something absolute but a system of relationships. And if philosophy accepts this, it will find itself here on much the same ground as modern physics, in so far as physics accepts the central principle of the Theory of Relativity.

From this position we may push on further.

Apart from the impressions of familiar experience, philosophy must accept its materials from science, and as yet the materials dealing with the physical aspect of the universe are much more abundant than the materials dealing with the psychic aspect. Our present knowledge of the world of mind, and of life also, is perhaps comparable to man's knowledge of the world of matter in the sixteenth and seventeenth centuries. It is seen that there is a vast territory to be explored. Some pioneers have crossed the boundary and have brought back exciting accounts of what they have found. But the task of methodical exploration is only at its beginning.

Take, for example, the phenomena of growth. We are so accustomed to seeing grass grow, leaves and flowers unfold, chickens being hatched out of eggs, that we seldom stay to consider how these things come about. Biology tells us that living growth is usually accomplished by the division of cells; it differs from the inorganic formation of crystals in being from the inside outwards, and in using material which is in most cases quite different from that composing the organism. Embryology tells us of the single fertilized germ-cell as it divides, proliferates, differentiates. In an animal embryo some groups of cells become muscle, some nerve tissue, some bone, skin, heart, lungs—each in right proportion and in the right place. Science so far has been able only to describe this process as observed fact. But we cannot refrain from asking, What is it that is going on in each cell to lead it so to develop? Clearly there must be something tremendous going on there.

Samuel Butler, in his stimulating book *Life and Habit,* contended that a mental process of some kind is at work, some kind of choice; that there is an element of memory, inherited from all past ancestors and crystallized into habit, which determines the action of the germinating cells. The late Sir Arthur Thomson held much the same view. He wrote in the *Journal* of this Institute, in April 1931: "There must be, one cannot help thinking, some evolutionary urge or nisus, *élan,* or impulse, rather subtler than has been yet analysed into either mechanical or chemical or biological terms. I mean nothing mystical, but something more than tendencies to aggregate,

to colloidify, to incorporate, to grow, to multiply, and so on, with all the involved catalysts, hormones, and organizers—I mean a psychical urge, the subjective side of endeavour." Again he wrote elsewhere, "It is difficult to think of a germ-cell, of a higher animal at least, as being without its psychical aspect. Unless we think of "the mind" as entering in at a later stage in development, the germ-cell must have a dim primordium of the subjective, the promise and potency of mentality."

General Smuts, in his *Holism*, presents the same problem. Every organism is a "whole," which is essentially different from a mere concatenation of its parts, and can only be understood as a whole; just as a precious picture by an old master is essentially different from the few shillingsworth of paint and canvas that went to its making.

Consider the problems that arise in connection with hypnotism and telepathy, perhaps water-divining also. Underneath an accumulation of credulity, superstition, hallucination, and fraud, there seems to be some element of fact not yet explained. So also with Fabre's researches into the methods of communication between insects. He found empirically that things happened for which no explanation, based upon present knowledge, would suffice.

There is need of a clue. Psychologists are in search of it. One of the most eminent among them, Dr. Aveling, has recently written: "It is not unduly optimistic to hope that the immense amount of material being gathered together in experimental psychology will lead to an empirically established and acceptable view of the nature of the conscious principle." (Possibly some experimenter in electro-biology, exploring, perhaps, that problem of communication between insects, may discover a form of radiation which affects mental processes directly.) By dint of trying we may hit upon some brilliant simplification; as Copernicus did when all the apparent motions of the sun and planets, which seemed so intricate and confused, were brought into harmony and order by his discovery of the movement of the earth; or Newton and Einstein when they presented the theories of gravitation and relativity; or J. J. Thomson and Rutherford, when the discovery of the electron revealed the unity underlying the diversity among the chemical elements; or Pasteur, when he established the common microbic origin of many different and mysterious diseases. So now, we await some discovery in the psychic sphere which may enable a number of confused and apparently discrepant phenomena to fall, quite simply, into their places in an ordered scheme.

Although physics has advanced so much further than "psychics," if I may use that term, yet physics also brings us to a point which seems at present to be a dead-end. What, after all, *is* an electron?

In the endeavour to answer that question physics seems sometimes, as Bradley put it, "to attempt to compromise between something and nothing." Whitehead says that "the event is the unit of things real;" just as Bosanquet had spoken of "the eternal deed that is the heart of reality." But on examination that proves not to be very satisfactory. If you get rid of everything except a happening, there can be no happening either. Eddington recognizes this. In a recent book he writes: "You cannot have space without things or things without space; and the adoption of thingless space (vacuum) as a standard in most of our current physical thought is a definite hindrance to the progress of physics." There is something here waiting to be discovered.

I have spoken of various aspects of the universe, and of three in particular; but that is obviously an arrangement merely for convenience of discussion, and not arising out of the nature of things. Nor need those three aspects be the only ones. The probability is that they are not.

Primitive man was wholly unaware of the aspect of the world which physical science has revealed. So far as he was concerned it might have been non-existent. Civilized man, realizing in some degree that second aspect, still had until recently only a dim, vague idea of the third, the mental aspect; and his present understanding of it is only rudimentary. Why should we suppose that there are not other aspects as well—a fourth, a fifth? There is indeed good reason to believe that there are. All our present knowledge, all our present lines of inquiry, pushed to their furthest point, would still leave unexplained the fact of existence. There must be something beyond. "Under every deep," said Emerson, "a lower deep opens." It is often said that the ultimate must necessarily be incomprehensible to the human mind. But this is only a guess, an arbitrary assertion. It may well be that it is incomprehensible. But on the other hand it may not.

A man goes into his library followed by his dog. The dog is aware of the books; he can see the volumes, smell them, touch them; but by no possibility could the mind of the dog apprehend the matters dealt with, for example, in the *Encyclopaedia Britannica*. Perhaps our relation to the universe is of the same order. Considering the origin of man from lower organisms, and the way in which his mind has been evolved, it would be surprising if it were not so. Yet it may not be so.

Herbert Spencer made a division between the known, the unknown, and the unknowable; but whether there is an unknowable is itself among the unknown. We have already advanced some way. Primitive man would have regarded such knowledge as we now have of the

microbe, the electron, radiation, the quantum of action, or with the matters dealt with by higher mathematics, as altogether beyond the limits of comprehension. Yet they have proved to be within them. It is not impossible that a line of research may be opened some day which shall bring within the grasp of human understanding a fourth aspect of the universe, as different from the second and third as these are from the first. And afterwards, perhaps, yet other aspects. And in one of these, it may be, we shall find Deity, not only implicit but explicit.

Viewed from this standpoint many of the old controversies of philosophy seem strangely remote. Particularly the attempts, repeatedly made, to divide the subject-matter of inquiry, whatever it may be, into two categories, the method of dichotomy. How much time and thought have been spent upon the distinction between "substance and predicates"; Locke's "primary qualities and secondary qualities"; Descartes's "matter and mind, *res extensa et res cogitans*; Hegel's "being and not being"; the nineteenth-century scientists' "matter and force"; in our own day, Bergson's "matter and the *élan vital*"? So also all the controversies as to the boundaries between man and nature, reason and instinct, physics and metaphysics, appearance and reality, the immanent and the transcendent, natural and supernatural, faith and reason.

We may perhaps be developing a new philosophy to which all such discussions will seem as far away as the scholastic controversies of the Middle Ages, or the fierce theological disputes of the sixteenth and seventeenth centuries. It may be of interest to the historians of philosophy, to the antiquarians of the intellect, to explore these mediaeval walled cities, with their mazes of narrow streets, where metaphysicians pursue each other round corners and in-and-out of twisting culs-de-sac; but the modern philosopher, anxious to arrive at a destination, will make a new by-pass that cuts them out.

Let me end with a summary of the ideas I have tried to lay before you.

The world in this generation is crying out for a philosophic basis for its thought. It will not find it except in a philosophy which builds with the materials brought to it by science. Science shows us aspects of the universe other than that of ordinary life: the aspect revealed by physical investigation and the psychic aspect. These must all be mutually consistent, since they represent the same world. Each of them presents reality within its own framework; for reality need not be something absolute and ultimate, but can be a system of relations. There may be, there probably are, other aspects of the universe besides those so far revealed; for neither

our present physics nor our psychics give, or promise, any complete explanation. Whether it is within the capacity of the human mind to grasp these other aspects we do not know; and we cannot tell unless and until we do in fact discover them.

So long as science was materialistic, any philosophy based upon it was a closed system, and gave no room for what we term the divine. A philosophy based upon a broader science does give room for it. And here, too, such a philosophy meets the need of the age. For now, as ever, man seeks Deity.

Some day we may be able to find a plain and simple access, even from the world as we know it, to Deity. The prophet, the saint, the poet, point the goal. So it may be that Science, Religion, and Philosophy—knowledge, spirit, reason—all three together, shall redeem and raise mankind.

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In thanking the President for his address, the Bishop of Birmingham said:

Some among you may wonder at my presence here. If a political leader takes a close interest in philosophy, the fact is regarded as an unexpected but amiable eccentricity. But such tastes in a Bishop give rise to suspicion. He had better confine himself to theology, if he can retain amid his diocesan duties any intellectual interests; and, if he desires ease, let his theology be orthodox.

But I confess to-night to an insatiable interest in the progress of modern science; and, like Sir Herbert, I desire to use the new discoveries to fashion a philosophy which shall enable me to understand a little better the universe in which I find myself.

The address which our President has just given he kindly allowed me to see in typescript a few days ago. I was impressed, as all Sir Herbert's hearers to-night must have been, by the wide range of knowledge which he has used with easy mastery and by the skill with which his arguments are marshalled. I cannot but admire and sympathise with the President's determination to use recently-won knowledge in the search for reality. My admiration is conjoined to such a measure of agreement as a somewhat unorthodox disciple of Berkeley can give to a disciple of Spinoza. Loyally following his master, our President seeks the reality underlying all that is manifesting itself alike in matter and mind. I, on the other hand, find myself almost at the outset forced by the unity of the world to which I belong to see behind it creative Intelligence which sustains the whole. But whereas I thus quickly reach Deity as alike creative Intelligence and sustaining Power, Sir Herbert expects to find Deity at the end of his quest. I doubt whether the bases

which our philosophies respectively offer to religion are widely different.

But may I briefly indicate how I should myself be tempted to vary Sir Herbert's scheme. I should begin with the obvious statement that, to form a picture of the world in which we find ourselves, we perceive events. Perception is something more than mere cognition: there is in it the synthetic activity of the mind. By the continued exercise of this activity we frame concepts and finally obtain a conceptual scheme which is our picture of the world.

In complete agreement with the President I say that the most obvious picture is that of naïve common sense. I agree further with him that a more rational picture is that given by the trained man of science. A still better picture will presumably be obtained when the man of science can frame a scheme which includes the phenomena of life and conscious experience.

But then I ask whether by such a process we shall ever get to Reality. The answer—I suggest—depends upon whether our successive mental constructs are a continually more adequate picture of "things in themselves." Now I feel compelled to maintain that such a happy conclusion is only likely if human reason is akin to the creative Intelligence which has fashioned the universe—if, in other words, man can in a limited degree think the thoughts of God. I am prepared to make this assumption for we are part of the scheme of things, and, if our minds play us false to the end, the universe is not, for us, rational. If the assumption be incorrect, the human mind can only hope to reach a scheme which embraces all known percepts and contains no internal contradictions. Knowledge of such a scheme would not, of necessity, be knowledge of reality.

The difference between Sir Herbert and myself is, of course, far-reaching. He says that "thought is as real as matter." I reply that matter, so far as we know it, is merely a mental construct. The progress of scientific speculation lends no warrant to the belief that matter differs from thought in that it possesses substance. I cannot quarrel with our President's statement that reality, as human minds conceive it, is not absolute but a system of relationships. Yet, though we interpret reality as a system of relationships, it may nevertheless be absolute. For instance, as he truly says, we cannot perceive space without time or time without space. Yet the unity of space and time on which the doctrine of relativity is based may seem necessary to us only because of the limitations of our perception. Our instinct that space and time are somehow different in quality is very strong. Absolute time may exist in the mind of God.

Sir Herbert rejects, as I am inclined to do, the principle of

Indeterminism. That principle is founded on the fact that, in regard to such particles as electrons, we cannot observe the present without changing it. I would argue that this fact may well result from the limitations of our perception and have no more ultimate significance. If the behaviour of individual particles is lawless, it is difficult to understand how aggregates can show obedience to law.

But I quarrel with Sir Herbert for his constant use of the concept of cause. We do not discover causes: we only observe sequences of events. Those sequences under like conditions appear to be uniform. But in these sequences there is no logical necessity: our mental satisfaction arises from their constant repetition. Moreover, our knowledge of the sequences of nature is very limited. I cannot with any mental satisfaction impart the notion of cause into the sequence whereby irradiation of an egg leads to a monstrosity of a chicken. I am content to say that observed sequences belong to the unity of the universe. In other words, the cause of events is the will of God.

Sir Herbert, as we all know, is a convinced determinist. He is in good company, to which I am unworthy—and unwilling—to belong. I feel forced to believe that God, the sustaining Power or Intelligence of the universe, is creative: and I see no reason why man should not have some measure of creative freedom. This affirmation of the truth of a very common feeling is but an aspect of my fundamental postulate that there is some kinship between the mind of man and the mind of God. I do not, of course, pretend that our actions are not in large measure determined. What I cannot believe is that all that happens in the physical universe is the result of a definite scheme and that we are absolutely powerless to change the course of events. But I admit that it is difficult in our present state of knowledge to justify my scepticism.

In conclusion may I say how happy I am in the feeling that, as the President has suggested, arid theological and philosophical controversies are ceasing to engender hatred. We are less aggressively confident, more humble, than were our forefathers; and also we have the sympathy that comes of sharing the common background created by men of science. So I feel no bitterness as I follow and criticise our President. Rather I find pleasure in the shrewdness and urbanity of his exposition, and enjoyment in contrasting the weak places in our respective philosophic schemes. We may travel by different paths; but we begin with the same conclusions reached by our men of science, and none of us know where we or our successors will end. There need be no latent hostility between any of us if only we continue to seek truth.

THE AESTHETICAL SIGNIFICANCE OF THE TRAGIC

The Rt. Hon. The EARL OF LISTOWEL, Ph.D.

It has long been the habit of philosophers, and is still a common failing of ordinary playgoers, to see tragedy through the coloured spectacles of an acquired philosophical or religious outlook, and to commend or condemn rather from the standpoint of partiality for a certain view about life in general than from that of one assessing the intrinsic merits of a work of art. Because we all, whether laymen or specialists, theorize about the nature and destiny of that mysterious universe which, for a brief span, our minds illumine, and because the working hypothesis so engendered is inevitably tinged by our personal idiosyncrasies of temperament and taste, there have been —and, building on such a foundation, there must be—almost as many different theoretical explanations of the tragic as theoreticians speculating on this high theme. Besides introducing that personal equation which has always been anathema to science, the distorted vision for which philosophical preconceptions are responsible brings with it minor illusions that are scarcely less injurious; the reading into a play or a novel of notions that had never entered the poet's brain, or the interpolation of history with incidents that never really occurred, the discarding of much that is genuinely tragic because it happens not to fit into the mould shaped by our own ideas, and the acceptance of much that is not merely untragic, but actually inartistic—pacifist, or communist, or feminist, or religious propaganda —because it happens to display the native hue of our own convictions.

Schopenhauer, in common with the other German idealists, and despite his remarkable artistic sensibility, stumbled heavily into this pitfall. The great quietist, whose prophetic voice challenged so imperiously the shallow materialism of the industrial revolution, saw in tragedy, the masterpiece of poetry and second only to music among the arts, a perfect reflection of those dark, irrational powers that condemn mankind to unending misery, and in the tragic hero one of those rare beings who, conscious that selfish passions are the prime source of evil, deliberately withdraw from a world contaminated by stupidity and vice. "Thus we see in tragedy," he writes, "the noblest of men who, after a long struggle and bitter suffering, abandon freely and gladly the aims they have hitherto pursued so vehemently, and renounce for ever all the pleasures of life." And he then proceeds to speak, in the very same breath, of

an obscure tragedy called *Mohammed* by Voltaire, and of such incontestable *chefs-d'œuvres* as *Hamlet* and *Faust.*

Bertrand Russell succumbs to this very methodological sin when he hails tragedy as the highest incarnation of freedom, being a deliberate imaginative representation of man's invincible endeavour to build, in defiance of the hostile universe without, a flawless temple to his own immaculate spirit. In that memorable essay, where reason is suddenly kindled by deep poetic feeling, he declares that "of all the arts, Tragedy is the proudest, the most triumphant; for it builds its shining citadel in the very centre of the enemy's country, on the very summit of his highest mountain; within its walls the free life continues, while the legions of Death and Pain and Despair, and all the servile captains of tyrant Fate, afford the burghers of that dauntless city new spectacles of beauty." Brave words these—but who does not see that they reflect a whole philosophy, that of a pessimist steeling himself to forces indifferent and infinitely superior to ours, something of the "grim, fire-eyed defiance" with which Carlyle so valiantly faced the inevitable?

But if we are to escape from such arbitrary and personal judgments as are offered us by the imposing array of philosophical definitions of the tragic, and to take our stand on the common ground of experience among generations of men who have dwelt in civilized communities, we must cast aside the panoply of prejudice and preconception in order to approach our quarry, in all humility, armed with nothing save an open, receptive, keenly sensitive spirit. Our march towards the truth begins, therefore, from the immediate and living experience, whether past or present, of tragic lives, tragic events, tragic spectacles, tragic scenes, that have, at one time or another, darkened the path of history or raised everlasting monuments in the cathedral of art.

This maps out a field of inquiry that cannot conceivably be circumscribed by dramatic tragedy. Nature, it is true, however grand and terrible its convulsions may be, lacks the human element which would stamp it with the hall-mark of the tragic; the avalanche, the volcanic eruption, the violent quaking of the earth, or the furious hurricane of the typhoon, must be a magnificent and exhilarating, if awesome, spectacle, tinged perhaps momentarily by fear, but never suffused—at any rate for the observer—by the darker shades of melancholy. History, on the other hand, tells many tragic tales. It records the slow decline towards ultimate extinction of well-established cultures, gradually blotted out by senile decay from within, and by the irresistible pressure from without of famished hordes of bloodthirsty barbarians; thus, according to Toynbee, of the nineteen different civilizations that have gained a foothold on this planet during the last five thousand years, only five

—the Western and Orthodox Christian, the Islamic, the Hindu, and the Far Eastern—have succeeded in surviving, even in a degenerate and attentuated form, until the present day. The footprints of fourteen others have therefore been already obliterated from the sands of time. History chronicles besides the fate that has overtaken in every age the indomitable pioneers of social progress, and the prophets whose vision has roused the slumbering idealism in men's hearts, describing the contempt, persecution, or violent death they have always endured at the hands of their philistine contemporaries. The legendary figure of Prometheus, condemned to excruciating torture for having bestowed the gift of fire, typifies many of the greatest benefactors of mankind—a Socrates, a Jesus, a Jeanne d'Arc, a Lincoln, a Jaurès—whose very elevation of soul has been the prime source of their undoing.

But if we catch a glimpse of the tragic among the prosaic and unflattering annals of the historian, we see it, again and again, in the panorama of imaginative creations opened before us by the artist. Not, at its full stature, among the major or minor spatial arts, for a story, whether glad or pitiful, necessitates a sequence of events which happen in the lapse of time. What Lessing said so justly of painting, when he held it up for comparison with poetry, namely, that it can only imprison a single fleeting moment which it snatches out of an endless file stretching from past to present, applies with equal force to all such arts as deploy themselves only in the dimensions of space. Architecture and decorative art, not being representative of personality or of the concatenation of events, are completely devoid of tragic elements.

Not so, however, painting, sculpture, and the graphic arts, which abandon brute matter for the higher sphere of human life, enterprise, and conflict. Here, at least, the shadow of the tragic falls athwart our path, and we enter those crepuscular regions which lead insensibly to the pitchy cavern of consummate tragedy. The plastic artist seizes upon what he conceives to be the crescendo, the absolute climax of mortal agony, a moment when something lofty, towering clear above its fellows, is pulled down and smashed by the malice of men or the cruel indifference of fate; and this he rescues from oblivion by means of his brush or his pencil, his marble or his bronze. The tragedy which gave birth to the Christian religion hovers over the sacred paintings of the Primitives of all nationalities, and over the pictorial art of the Florentines, the Umbrians, and the Venetians, until the sensuous paganism of the Renaissance had broken the spell which bound the Middle Ages. The theme of the Crucifixion appears and reappears wherever Christianity has ministered to religious needs. It is sounded, with childish clumsiness but touching sincerity, by hundreds of devout Primitives; by Grünewald in the

scarred and tortured figure that he painted for the high altar at Colmar; by Botticelli, in his tragic *Entombment* of the Alte Pinakotek in Munich; by Rubens, in his sombre *Descent from the Cross*, so rightly housed in the Cathedral at Antwerp; and by Michelangelo, in his *Pietà* at St. Peter's, where the bereaved Mother bends, as much in dumb solicitude as in despairing grief, over the young and still beautiful body of her beloved Son.

Passing from the hegemony of spatial extension and immobility among the fine arts to that of time, succession, and movement, we observe immediately that temporal sequence is a necessary rather than a sufficient condition for the emergence of the tragic. The dance, when dissociated from the element of mime which it borrows from a sister art, that of the theatre, is a hymn of praise to the latent loveliness of the body, and the misfortunes that befall the soul are therefore alien to the ordered periods of its more material enchantment. Music, though it often approaches the portals of Melpomene, lacks the capacity for portraying the adventures of any specific and determinate individual; and without these credentials the threshold of the muse cannot be traversed even by her most ardent devotees. The tapestry of melody, harmony, and rhythm can show on its panels every shade of sentiment and mood, but they are invariably disembodied, being detached from the distinct personalities to which in reality they seem indissolubly united.

The musician exhibits, with unique intensity, the gloom and horror, the frightful abyss of undiluted suffering or cosmic despair, opened before our eyes by the tragic disaster, rather than the fatal course of events which led up to and precipitated the calamity. It is pure instrumental music, the sonata, the quartet, the concerto, and, above all, the symphony, that reveals far more clearly than the external realism of programme music, that overwhelming darkness which descends at times upon the spirit of the composer and of all sensitive, impressionable beings. The dismal failure of attempts to describe in musical tones a tragic issue is evidenced by the *Heldenleben* of Strauss. Who could tell, without guessing from the title or glancing at his programme notes, that the beautiful symphonic poem to which he was listening related the story of a heroic life and death? Let us turn rather to the greatest adagios of the pure musicians, for they reach not infrequently the stupendous pitch of tragic grandeur.

Beethoven, who left no peak unscaled, sounds this note in the *Pathétique*, and again, with a greater vehemence of despair, in the haunting funeral march of the *Eroica*; and so does Brahms, brooding in his *Requiem* over the transitory splendours of human existence; or Schubert, forsaking momentarily his natural gaiety and eroticism, when he plunges, with the wonderful contrasts in the first movement of his *Unfinished*, straight into the murkiest depths of the tragic

hell; at which, indeed, he is already hinting in the *Doppelgänger* and the *Erlkönig*. The first movement of Tchaikovski's *Sixth* and last symphony breathes a dark and terrible foreboding, a sense of irreparable loss, as though death, before snatching the composer away, had commanded him to record for mankind in a last oracular utterance the dreadful and inscrutable secret of its doom. Vocal music, not because it is wedded to the voice, but by reason of its alliance through words with poetry, and through gesture with mime, belongs unmistakably to another category. It is because they trespass beyond the boundaries of pure music as such that *Othello*, *Tristan*, or *The Ring* move us with the perfection of their tragic beauty as well as their extraordinary musical power.

This leads us, after a long detour through the provinces of art's domain, to the spot where Melpomene has delighted to exhibit her naked majesty ever since she cast off the yoke of the primitive nature-worship to which, in youth, she was so long enslaved; our wanderings have brought us, at last, to narrative and dramatic poetry. The lyric is left purposely unmentioned, for lyrical poets, like sculptors and painters, tend rather to describe in evocative language a single, isolated state of feeling, one that has neither sequel not antecedent, and they therefore share a like inability to launch out upon the stream of events that follow one another down the course of time. But they share besides—and this is their link with the tragic—a wonderful capacity for capturing the moment of utmost desolation. Think of the pathetic songs of the old, heart-broken Harfenspieler in *Wilhelm Meister*, whose tragic essence has been translated into another medium by the consummate artistry of Hugo Wolf; think of the nostalgic hypochondria in the laments of the consumptive Leopardi, of Heine's anguished outpourings, a veritable epitome of all the bitterness in disappointed love, of the black pessimism with which so many of A. E. Housman's most exquisite lyrics are laden.

But the true home of the tragic, outside the history of outstanding persons and perishing cultures, is the drama, the epic, and the novel. What broad features, we are entitled to ask, are common to tragedy, whether written in narrative or dramatic form, to the classical and romantic and realistic varieties that stretch from the Athenian amphitheatre to the modern stage, and to the vastly different works that supreme tragedians like Ibsen, Shakespeare, and Sophocles have produced in the tragic vein? Dismissing the particular excellences exhibited by individual plays, individual authors, and individual schools, let us concentrate our whole attention upon those underlying similarities, those essential points of mutual resemblance, that alone confer genuine significance upon an otherwise empty and meaningless concept.

Sometimes a truism hides a vital truth. To say that every tragic story within the last two thousand five hundred years, whether it was told in Greece before the birth of Christ or in England during the present century, has involved at least one central figure commonly known as the hero or heroine, sounds dangerously platitudinous. Nevertheless, it explains part at least of the riddle we are trying to solve. For there is something of the *monstrum per excessum*, of the super-man, of the giant decked out in human clothing, about the man or woman whose fate has furnished or can furnish a fit theme for tragedy. They live, these strange, volcanic beings, on a different plane to that occupied by ordinary mortals like ourselves; it may be that the passions stirring them are more elemental than those sophisticated habits have tamed in us, or that they are better attuned to those overtones of wisdom, loveliness, and high courage which our more earthy natures labour so heavily to catch. They may be gods or devils, but they are certainly not housewives or business men; they are sometimes akin to the genius and sometimes to the criminal, but never to the dull, plodding, self-satisfied, unadventurous average representative of the species. This margin of excess over the mean is the precise point at which the sublime projects into the territory of the tragic; for there is—indeed there must be—an element of sublimity in the tragic spectacle, even though it is the subsequent course of events that decides whether the sublime figure is to become tragic as well.

Now the greatness of the mighty protagonist is not necessarily, even in part, a superiority based on such external trappings as social status, birth, or rank, the "high estate" with which Bradley endows the hero in his definition of Shakespearean tragedy. True it is that in the four tragic masterpieces of Shakespeare the central figure crashes down from the apex of the social structure, being either a sovereign monarch, or a nobleman who seizes the crown, or a prince of the blood royal, or a general in the service of the wealthiest maritime republic in Europe; and, moreover, that the tradition of a comfortable place in the public eye was not broken until the nineteenth century. The rise of the middle classes to economic and political ascendancy was mainly responsible for a swift and sudden change of scene from Courts and palaces to urban or suburban homes; the drama of Ibsen, Strindberg, Sudermann, Hauptmann, Shaw, is as plainly bourgeois in character as that of Corneille or Racine was princely and aristocratic.

What is more, contemporary dramatists have swept aside the last of those artificial barriers that divide men up according to the size of their incomes or the purity of their pedigree, and quite regardless of their intrinsic value. The peasant tilling the soil, the skilled artisan in the workshop, even dwellers in the fetid slums or

congested tenements of our drab industrial cities, have now been summoned, from the obscure corners where history would pass them by, to join the small but intrepid band of heroes that rouses anew the faith, the pity, the admiration, the exultant delight, of each successive generation of men. Hardy's Tess milks the cows as a dairymaid on a west-country farm; Hauptmann's Silesian weavers are, like the miners in Zola's *Germinal*, the miserable, starved, cheated, ruthlessly exploited workers that slave under capitalism for those who possess their sole means of livelihood, and his Rose Berndt is of the humblest peasant extraction. Nan Hardwicke, the friendless orphan of Masefield's beautiful tragedy, speaks in a soft, sibilant dialect that mingles sweetest harmony with the atrocious discords of this pastoral symphony.

Centuries have elapsed since the fate of King Oedipus first struck terror into the souls of gaping Athenians. The tragic hero has been stripped, progressively, by the very movement of social change, of his royal purple, drained of his blue blood, reft of the public office or private millions that raised him on a dais above the heads of the common crowd. Time has winnowed in this fashion the good grain from the chaff, freed the essential from its adherence to the inessential, separated effectively the transitory from the permanent and durable; and the residue remaining after this historical purge, that inherent greatness of the inner man which the collapse of civilizations cannot undermine, is what calls for our closest attention since the outer husk has been discarded.

We should first rid ourselves of those ethical blinkers that have so often distorted the approach to heroic personality. I do not merely mean that the melodramatic crudities of poetic justice are thoroughly misplaced in tragedy, but that any attempt to measure the stature of the hero in moral terms, or to brand him with responsibility by means of some stain, some *ἁμαρτια*, however slight, upon an otherwise flawless record, is bound to be frustrated by the resistance of plain and stubborn facts. In the everlasting battle between the powers of darkness and those of light, between Ormuzd and Ahriman, there have fought in the ranks of Lucifer men whose very ardour in the cause of cruelty and cunning, of destruction and brute force, has uplifted from the common rut. Such was the baleful genius of the conquerors who laid whole kingdoms waste, Caesar, Alexander, and Napoleon; of Shakespeare's blood-stained adventurers, Macbeth and Richard III, and of his tigerish Cleopatra; of Ibsen's demonic Hedda Gabler; of Tamburlaine, Marlowe's inhuman monster; and of Webster's devilish Duchess or his sanguinary Vittoria Corombona. Beasts of prey, dealing ruin, misery, and death wherever they prowl, victims of an insatiable egoism that swallowed up the last

vestiges of altruism and self-restraint, they share, nevertheless, in the sublime grandeur of those natural forces that so infinitely surpass the puny strength of man.

Their downfall was the sequel to no passing frailty of the flesh, to no momentary error that the future might have redeemed, for vice was rooted in the very substance of their animal natures, and when they crashed they were pulpy, rotten, worm-eaten to the core. Nor can the Aristotelian ἁμαρτια be seen to mar the spotless escutcheons of those whose footsteps were guided, by the pure light of conscience or love, before their appointed time to the gates of death. Antigone is disloyal to the written laws of the State, because, like so many since, even at the cost of her own life, she must follow unswervingly the higher loyalty that appeals from the ideal legislator within. "I join with men in loving," she declares to Creon, "not in hatred." What crime has Goethe's Gretchen committed to be overtaken by the twin furies of madness and infanticide? What sin was hers, save that she loved not wisely but too well? Maeterlinck's Burgomaster of Stilemonde can be reproached for nothing save a heightened sense of common decency, that renders his own death preferable to the execution in his place of an innocent man, while Shaw's St. Joan is condemned, simply because she refused to utter a soul-destroying lie, to the slow and excruciating agony of the stake. The Abraham Lincoln of Drinkwater is a solid rock unstreaked by swollen-headedness or selfish complacency, an utter stranger to the multitudinous ambitions of the ordinary aspirant to public office. While he pilots the ship of State his humanity is broad enough to embrace the black man as well as the white, and deep enough to feel the ravages of war among his enemies of the South as acutely as the wounds it inflicted on his own comrades of the North. In the hour of victory he allows compassionate forgiveness to seal a lasting peace, where vengeful hatred would certainly have sown anew the seeds of discord; and yet, his work half done, he succumbs to the bullet of an assassin. There is, indeed, no tragedy more poignant, more heart-rending to behold, than the story of those rare beings, unstained by any trace of egoism or duplicity, who have been betrayed by their very nobility into the hands of grabbing, grasping, merciless mediocrity.

We have now reached a point where we can safely declare that the central figure in tragic drama must, in some direction or other, reach out beyond the mean. Its greatness may be evinced in the guile of the criminal or in the devotion of the saint, in breadth of knowledge, in splendour of imagination, or in sheer capacity for suffering; what matters is not the particular organ affected, but the simple fact that, in some part of the organism, distinct hypertrophy should be perceptible. This disposes immediately of the frequent

but fallacious assertion that every death-bed is a tragic scene; for the grave is the common terminus of all our separate journeys, but it is only at the passing of a hero that the Valhalla of poetry rings its bells and throws wide its gates in welcome. The setbacks and disappointments, the sorrows and misfortunes, that strew so liberally the path of ordinary life, require to be magnified a thousandfold before they can rub shoulders with the sublime. And that is why a certain type of literature, however lavish it may be with broken hearts, with thwarted hopes, with chronic melancholia, never attains the stature of the tragic. It belongs, properly speaking, this cloud upon the surface of the soul, to a separate and independent category of aesthetics, to that of the sad.

But heroic personality is clearly not the sole or sufficient ingredient of tragedy; if a figure of tragic dimensions basks continually in the sun of good fortune, and reaps success at every step it takes, the penalty to be paid is contentment with a role in successful novels or, at best, in straightforward drama. There must be obstacles to face, enemies to circumvent, misfortunes to overcome; these obstacles, moreover, are of no ordinary size, but so colossal as to exact the utmost from a colossus, so overwhelming as to prove, after a long and honourable struggle, absolutely insuperable. The hero has therefore to cover, in the unfolding of the story, the whole distance between his initial reverse and his ultimate destruction; some terrible mishap or calamity pushes him over the vertiginous steep, down which he rolls until his misery, gathering momentum every second, is cut short by the final plunge into psychic ruin, madness, or the grave.

Always the change of fortune must be from good to bad, never from bad to good, or even from better to worse, and, like the fairy-tale, back again to blissful happiness at the close. The conventional "happy ending" to a tale of woe, stock-in-trade of melodrama and the second-rate novel, either appals by its improbability or, when constructed to seem at least fairly plausible, gives the stamp of tragi-comedy to a literary production. Shakespeare, exhausted perhaps by the tension of his four tragic masterpieces, concludes his career as a dramatist with a series of clumsily constructed tragic-comedies—*Cymbeline*, *The Tempest*, and *The Winter's Tale*. The Greeks turned tragedy into comedy by the superlatively crude mechanism of the *deus ex machina*, which shocks us more than it did them because we do not share their polytheistic superstitions. Medea, the murderess, is wafted skywards by a winged chariot when on the point of being arrested for her crime; the goddess Athena appears in the *Iphigenia* just in the nick of time to prevent Thoas from capturing the fugitive pair. Similar artifices, if somewhat less clumsy than these, have been often used by modern dramatists

to steer their characters safely home, after many storms, to an unreal haven of lifelong happiness.

There emerges from what has been said that the hero should fall from a great height to annihilation. According to the principle of contrast, which looms so large among the fine arts, the greater the height from which he topples the more dire the ruin, the more sombre the tragic effect, of the whole catastrophe. From the very summit of worldly success, domestic felicity, outward prosperity, and inward peace of mind, he is hurtled by a concatenation of misfortunes that might to-morrow befall any one of us, into a yawning gulf of failure, suffering, and unfathomable despair. Many have maintained that physical death, in whatever shape it may come, is the only fitting climax to such a story, but the example of the great tragedians suffices to show that the transformation of a rational being into a mental cripple or a lunatic, is equally, if not more terrible, than his bodily dissolution. The great majority of classical tragedies terminate, it is true, with the physical death of the hero or heroine; but that severe mental disequilibrium is alone sufficient for a tragic climax is attested by Prometheus, who lies chained in everlasting torment to his rock; by Oedipus himself, who leaves his palace blinded and broken, but still alive; and by the Mrs. Alving of *Ghosts*, who is fated to linger on after her only son has gone raving mad before her eyes.

If we glance back for a moment at the ground we have traversed, we shall see that the essence of the tragic, visible after every redundant feature has been pruned away, is really exceedingly simple; an *exceptional person endures exceptional ill fortune culminating in the destruction of his mental faculties*; a single star of the first magnitude, shining in lofty isolation from its fellows, dives suddenly to extinction in the dizzy abyss of surrounding space. Whether such a fate as this has been allotted by providence to real figures moving, majestical in tribulation, across the stage of world history, or by the artistic imagination to people whose only lives are in the pages of a novel or across the footlights of a theatre, matters not in the least; for life has its tragedies as well as art.

When we survey the dramatic tragedies of ancient and modern times, of all those periods when the arts have prospered in Western Europe, we find, besides the common traits already indicated, a striking cleavage in the manner of struggle which hurls the hero from his pedestal; it may either be predominantly *an outer conflict*, when the hand of fate or the hostility of society conspires to overthrow him, or predominantly an *inner psychological conflict*, when he harbours in the mainsprings of his own personality a secret but invincible foe. Broadly speaking, the modern tendency is to emphasize the strident disharmonies within the soul, whereas the Greeks

preferred to stress the antagonistic relations in which an individual stands to his fellow-men or to the cosmos. That personal character, rather than mere outward happenings, is the real focus of dramatic interest, was first discovered by Euripides, and from that day to this the main current of European drama has flowed consistently in a subjective direction. The impersonal and philosophical sweep of classical tragedy has been brilliantly described in a passage from Whitehead. "The pilgrim fathers of the scientific imagination as it exists to-day, are the great tragedians of ancient Athens, Aeschylus, Sophocles, Euripides. Their vision of fate, remorseless and indifferent, urging a tragic incident to its inevitable issue, is the vision possessed by science. Fate in Greek tragedy becomes the order of nature in modern thought."

It would be well in conclusion to examine briefly the purely subjective or psychological aspect of this particular embodiment of the beautiful; to consider, not the succession of happenings external to ourselves which are the separate links in a tragic story, but rather their direct effect upon the responsive reader or spectator, to tear, if we can, a few pages from the autobiography of the sensitive recipient. Generations of philosophers have been staggered by an amazing paradox; men shun pain as they do the plague, yet here is a torture invented by themselves, that they pursue, embrace, and adore, as though they were passionately enamoured of it. This, too, is the stumbling-block that invariably trips up the aesthetical hedonist. There is, I believe, only one possible explanation for such anomalous behaviour; that, in the case of the tragic—as in that of the sublime, the ugly, and the grotesque—we do not react with a simple homogeneous feeling of either pleasure or pain, both sentiments being in evidence to a greater or lesser degree, and that the gain accruing to us from the element of enjoyment and its attendant circumstances outbalances the loss we experience in terms of pure, undiluted suffering. Let us proceed to test our hypothesis in the light of fact.

Nowadays the delicacy of our psychological insight exceeds the wildest dreams of Aristotle. We no longer regard pity and fear as the twin emotions ruling in the realm of the tragic, because we realize that they are casual by-products of the tragic process; if a person or a fictitious character is sympathetic to us, we feel, undeniably, inclined to pity him when bowed beneath the weight of his misfortunes, and to tremble at every threat of impending calamity. As spectators we cannot long remain impartial, dispassionate, unmoved, in fact we become very soon partisans, planting ourselves firmly beside the hero and in the path of his advancing enemies; but emotions provoked in this way are directly relevant to a personal attitude towards the situation, to a subjective

disposition to favour one side rather than another, and only indirectly to the incidents that mark the course of the narrative itself.

No one would deny that the sharp pangs of suffering that pierce the witness to a tragic history are an immediate and direct outcome of the sombre happenings which are its very marrow. We spontaneously, instinctively sympathize, "feel with," the hero or heroine whom fate has so cruelly condemned, utilizing to the full our unhappy faculty for sharing in the feelings of others and for making their sorrows our own; while, if the Titan's misfortunes are completely unmerited by his deeds, an outraged sense of justice augments our tribulation. But, more powerful perhaps than any of these sources of despondency, is the sense of loss that clouds our whole horizon when some divine spark—so rare a visitant to this humdrum world—is suddenly and for ever quenched. We may be young, carefree, exuberant with vitality and hope, fortune may have showered her blessings on us with a liberal hand, but the illusions of a fool's paradise cannot save us, sooner or later, from facing the grim reality that tragedy reveals. It epitomizes the universal omnipotence of dissolution and death. Nothing, it reminds us, however extensive its bulk, however strong and durable its texture, however fresh and youthful its complexion, however rare, elevated, or beautiful its animating spirit, neither the rose that withers in a single summer nor the stars that fade out after millions of centuries, can stem, even for a moment, the irresistible and annihilating torrent of time. It bids each of us remember that though we strive untiringly to wrest from Nature the secret of her being, though our days are haunted by a loveliness that hovers so enticingly beyond our reach, existence is fleeting as a match that flames in the dark; that the treasure-house of knowledge will be despoiled, the fragile dream of perfection instantly shattered, in the iron grasp of a remote, inevitable, and unexplored future.

Yet, for such as are able to appreciate the intrinsic merits of high tragedy, the impression it leaves on the soul is not by any means one of unrelieved gloom, or even of momentary pessimism about the value of individual lives, How well I remember Miss Nancy Price, who has done so much to raise the London theatre from its lamentably low level, coming one day before an audience to plead on behalf of a fine modern tragedy written round the life of Nurse Cavell; let no one be afraid, she so rightly assured us, that tragic drama will leave them in a state of acute depression or suicidal despair. Indeed, the reverse is true, not merely because it is often accompanied by a retinue of agreeable concomitants—a well-constructed plot, carefully drawn characters, a troup of actors rising superbly to the occasion, a literary style rich in metaphor, abundant in vocabu-

lary, euphonious but natural in phrasing—not merely because our vitality is so enhanced by emotion that we prefer even terror or pain to the empty tedium of pure apathy, but, first and foremost, because a tragic history contains in itself a full measure of comfort, encouragement, and exalted joy.

Some of us, outraged by the baseness of human motives or convinced of the futility of human aspirations, may retreat from the dust of conflict to hibernate in a comfortable arm-chair cynicism; others, embittered by the buffeting they have received at the hands of fortune or society, may sally forth to castigate their fellows by dint of a caustic or ironical tongue; others still may be overcome, with the fading of adolescent dreams, by a blasé indifference to everything save their private interests. But tragedy confounds the cynic, silences the ironist, and arouses the most indifferent from their slumbers. What a marvellous piece of work, despite his simian heritage, is this insignificant biped who has made himself within a few million years unrivalled master of the whole globe; what unplumbed depths of feeling he hides in his puny breast, what inexhaustible wealth of thought, what magical flights of fantasy, what immeasurable devotion to forlorn hopes, losing causes, impossible ideals, he carries about with him in a few inches of cerebral cortex. Nature may have poured the blood of wild beasts into his veins, but she has also cast him in the image of a god; she may turn life into a torture chamber from which death is a merciful deliverance, but she cannot crush the rebel within him or humble a spirit that is ignorant of defeat; she may destroy individuals as rapidly, as blindly, as remorselessly as she creates them, but the causes for which they suffered, the movements in which they found their immortality, survive to triumph in the promised land they beheld shining from afar, and where their brother pilgrims, thanks to those before them who fell by the wayside, will one day enter into the fullness of joy.

Fortifying and gladdening in the oppressive atmosphere of tragic bereavement, such reflections as these flit, almost involuntarily, across our minds, and awaken an immediate echo in our sensibility. For our natural height, so dwarfish in the petty transactions of a breadwinner's task, has been increased in the twinkling of an eye to the giant stature of a hero or a heroine; we have supported calamity after calamity—misfortune on the grand scale, not such pinpricks as are caused by the little vexations, the trifling disappointments, we find so hard to bear in ordinary life—without one murmur of complaint, without a flicker of an eyelid, with a steadfast equanimity born of inexhaustible courage; and, if our cause was that of the gentle Nazarene, or of the Maid who left her fields to weld France into a nation, we have lived to see that the sacrifice was not

in vain, that the victory for which these pioneers strove so hard was won decisively by their successors. Such is the precious balm offered by the tragic to its devotees; such is its sole justification for claiming that, though it may be sad, it is never depressing; and such the reason why, whenever drama has attained the high place it merits among the arts, whether in ancient Athens before its decline, or in England, France, and Spain during the Renaissance and its aftermath, or in Western Europe ever since the romantic revival of poetry, tragedy has constantly reappeared as the highest and the most philosophical of its varieties.

GREAT THINKERS

(VII) MALEBRANCHE

Professor JOHN LAIRD

Nicolas Malebranche was born in Paris on August 6, 1638, and died there on October 13, 1715. According to Fontenelle he was a tenth, according to André a thirteenth child, and his "machine" (i.e. his body) was persistently refractory. He was tall—about six feet—but something misshapen from rickets or some other such cause. His spine, according to the unprofessional P. Adry, was "tortueuse dans toute sa longueur," his clavicles too large, while his arms "n'étaient point attachés à l'ordinaire." Besides he had "all the maladies known in his time," including severe acidity of the stomach from the age of twenty-five onwards (probably arising from a duodenal ulcer). Nevertheless, he used to chew tobacco and was one of the earliest Parisians to become a coffee-drinker. For the most part, however, he tried to "manage his machine" by drinking water copiously. His portraits show him to have been strange, gaunt, intense, high-browed, and small-chinned.

What might have become of Malebranche had his "machine" been less abnormal may be a matter for curious conjecture. His father had a good position in the royal treasury, and a maternal uncle was Viceroy of Canada; but Nicolas from the first was studious and unworldly. As an adolescent he wanted to be a Trappist. His "machine," however, was unsuited for austerity and so became a fortunate occasional cause for the decision to make him a priest of the Oratory, the freest and mildest place in his church for a life-long meditative.

Malebranche's views are summed up in the saying that he elaborated a Christian philosophy in which Descartes was the Doctor in things natural and Augustine the Doctor in the things of grace. The Oratory was a stronghold of Augustinianism made vigilant by the need for defining its position in relation to Jansenism and munitioned after 1656 by Ambrose Victor's edition of Augustine's works. Its attitude towards Cartesianism is rather more doubtful, but that doctrine was permitted and to some extent encouraged under P. Bourgoing; and P. Poisson, a noted Cartesian, entered the Oratory in the same year as Malebranche (1660).

By his own account, Malebranche began by being *extrêmement prévenu* against the Cartesian philosophy, although he was also

contemptuous of his Peripatetic training at the college of La Marche and later at the Sorbonne. The year 1664, however, changed all that, for he ran upon a copy of the newly published (posthumous) *De l'Homme* of Descartes in a bookstall on the Quai des Augustins and was at least half converted as he fluttered the leaves. There was no turning back. He mastered the volume, then Descartes's other works; and he became for life a Cartesian Augustinian.

The editor of *De l'Homme* was De la Forge, a physician in Saumur, where Malebranche had spent some months of his professional training, and De la Forge, in the next year, published his *Traité de l'esprit de l'homme*, developing his theory of occasionalism and explicitly coining the term. It is likely enough, therefore, that Malebranche had rather definite anticipations that day on the Quai des Augustins, and it is clear that he was strongly influenced later by the works of De la Forge (which he possessed) and also by the writings of the other chief French occasionalist (whom he quoted), the lawyer Cordemoy, who published his *Le discernement du corps et de l'âme* in 1666.

Doubtless Malebranche would have developed the theory for himself even if he had not found the name "occasionalism" in current use. In any case he made himself into the first Frenchman of his time in philosophy and one of the first in science and in letters. The first volume of his first (and greatest) book, the *Recherche de la Vérité*, appeared in 1674 and was succeeded by the other three volumes at about the optimum interval for a healthy family. Of his later works, the most debated was his *Traité de la Nature et de la Grâce* (1680), one of the best was his *Traité de Morale* (1683), while his *Entretiens sur la Métaphysique et la Religion* (1688) gave the best general summary of his mature philosophy. But he was never long parted from his pen, and he defended his doctrines with a formidable array of polemical pieces. I have not read all his writings, and regret in particular that I have been unable to see the interesting volume of dialogues in which (for the benefit of the Jesuit missionaries in China) he shows how pure reason can prove the existence of God to the confusion of the Confucians. But I have read some six thousand smallish pages.

The longest of these polemical activities was with the ageing Jansenist, Arnauld (who died during the controversy), but Malebranche also defended himself against Régis, Foucher, and others, and against the Jesuits generally (despite his good offices to their missionaries in China). He had also to wait some time before he gained Bossuet's admiration and Fontenelle's regard. His *Treaty on Grace* was put upon the index, but its author remained pretty calm. "If I were in Italy," he said, "where this sort of censure has its abode, I would abstain from reading a book condemned by the

Inquisition; accepted authority must be obeyed. In France, however, this tribunal has no standing. So there the Treatise will be read" (André's *Life*, p. 200).

As I have said, Malebranche was renowned in letters and in science. He became a member of the Academy in 1699. De l'Hôpital's dying request was that Malebranche should edit the treatise on the infinitely little. Leibniz dealt with him as a distinguished but erring equal about 1687 (when Malebranche candidly confessed to a Cartesian error regarding quantity of motion). Malebranche had a European reputation in the science of optics, and when he visited Rochefort in 1688 the officers of the fleet gave him a reception and consulted him about naval architecture. As regards letters, an admirable comment appears in André's remark, "le pédantisme était en désespoir."

In so far as an elaborate philosophy can be summed up in a phrase, the epitome of Malebranche's is that "we see all things in God." His endeavour was to expound this Plotinian-Augustinian doctrine to the "new" or scientific world.

The phrase, however, might easily mislead. What Malebranche saw in God he saw with his mind and not with his eyes (indeed he believed that the colours he saw were, strictly speaking, in himself). As a scientist and philosopher he sought *clear* ideas (as the other new philosophers did), and he disdained all others. Yet Malebranche's philosophy was not simply a theory of knowing; it was also a theory of being. In God's wisdom lay all our seeing, but God was also the sole reality, the great I AM; and there was no efficacy save in Him. He was Being in all its infinity; and He was omnipotent because *all* effective power (or causality) was His alone.

For Malebranche, then, a clear idea was the pellucid intellectual vision of a Platonic or Plotinian essence, constitutive of ultimate reality. The man who saw such an idea participated in God's wisdom, which was also God's nature in the plenitude of its power. Such "ideas" were like the *nombres nombrants* that ordered as well as expressed the essence of numerically determined existence; and similarly with regard to geometry. God was the place of all such ideas, although not in the heretical sense that made Him extended. Yet God was the intelligible essence of extension, and also made the difference between possibility and actuality.

According to Malebranche there was a *total* disparity between the way of clear ideas and the way of sense. Indeed error, the subject of the *Recherche*, was due in the main to the confusion between sense and knowledge. The senses did not really *tell* us anything. They only warned us, and the man who mistook their pragmatical warnings (e.g. of danger) for knowledge of fact was the dupe of a prejudice

that dated from the Fall (when man's body became a tyrannical obsession instead of a submissive, innocuous servant). The imagination and the passions, being sensory and bodily, were tainted by this original sin; and so in sundry ways were many of our natural human inclinations.

Consequently, a great part of Malebranche's philosophy consisted of an account of the place of the senses and of their derivatives, such as memory, imagination, and passion. The grand rule of philosophy was *Nosce teipsum*, i.e. knowledge through clear ideas "*in the silence of sense*," and the total repudiation of sensory mis-knowing.

In his account of the senses, Malebranche was content, for the most part, to argue from the facts concerning vision. Here, as he admitted, Augustine had not always divined what the new science had triumphantly ascertained; but Malebranche himself was heartened by the new discoveries. It was now known, he said, that colours (which, after all, are all that we see) were not in the object but in the beholder's mind. Hence it was a gross error to suppose that they must reveal the nature of physical objects. If they revealed anything they revealed ourselves (and that very obscurely). In short, these new discoveries refuted the crude notion that the eyes are the messengers of truth in physics and the foolish superstition that seeing should be believing.

What held of colours, on this essential point, held also of the other sensible qualities. All of these were in us, as much as pleasure and pain, and they could not reveal the nature of extra-mental fact any more than pain could. The red-hot poker is no more red than it is in anguish, and scholastic-Aristotelian occult qualities, *species impressae* and the like, qualify for admission into Limbo.

It may be doubted whether Malebranche was quite as consistent as he supposed. He did admit a certain unclear sensory *representation* of distant objects. He accepted "natural judgments" in this matter, not infallible, but not at all contemptible, and such judgments seem, in his view, to have been largely based on sensation. He also held that the presence of a colour was a strong and reasonable although slightly risky indication of the *existence* of a physical object in one's neighbourhood. Indeed, he allowed himself to say of bodies "que nous less *connâissons* par la voie courte et sûre mais confuse de l'instinct ou du sentiment" (*A.*, I, 166).[1] In short, he did not uniformly hold that the senses revealed *nothing* concerning physical nature.

Let us pass the point, however, and approach his account of the two great divisions of natural science, viz. (*a*) physical bodies and

[1] *A.* = *Correspondence with Arnauld*, ed. 1709 (4 vols.).

the communication of movement, (*b*) the laws of the union of body and mind.

(*a*) In this matter the first point to settle is whether we know that physical bodies exist; the second point is our knowledge of their nature.

On the first issue, Malebranche admitted quite candidly that it was impossible to produce an irrefutable scientific *demonstration* of the existence of such bodies. Natural reason supported a strong inclination to accept their existence, and Malebranche did accept it, admitting that he was bound to do so because the Scriptures said so. (It may not, however, be entirely clear what "the existence of physical bodies" could mean in Malebranche's philosophy. His official view of the meaning of real existence was participation in God's actualized as opposed to His merely possible ideas; and some may think that, in the physical domain, this view dims what should not be obscure).

On the other hand, Malebranche was confident that *if* physical bodies existed it was demonstrable what their nature must be. Extension must comprise their whole essence. They must be extended and the attribution of other qualities to them was either a sense-prejudice or the sense-begotten nonsense of the Peripatetics, the "galimatias impertinent et ridicule" of Aristotle or of some other clouded intellect.

Bodies move. They move regularly. They move, if they move freely, in a straight line. Their movements can be described, predicted, and postdicted with the most elegant precision by deductions from the fundamental laws of motion. Nevertheless, according to Malebranche, they have no efficacy. They can only *receive* motion, and can neither create nor acquire by communication any power whatsoever to move themselves or to move other bodies. All their power of any sort is divinely imparted. (See, e.g., *R.*,[1] Ecl. XV, vol. iv, 226.)

This does not mean only that there is no way of *demonstrating* any other efficacy. It means that there *can* be no other, that there is no possible suggestion of any other agency "that can make any impression at all upon an attentive mind." The theologians, it was true, had adopted a face-saving nonsensical device according to which God lent His concurrence to all second causes. If so the concurring force would act, but would not act alone. Therefore the second causes would have to act too. They would be genuine independent causes (although part-causes) which is precisely what Suarez, Fonseca, and other such theologians wanted to conceal. Others talked of "Nature" and of "natural causes" acting in their own right once they were created, thus splitting the universe into a pagan and non-pagan part.

[1] *R.* = *Recherche de la Vérité*, in edition of 1772 (4 vols.).

The unity of the universe stood in the way of all these devices, but Malebranche, far from being content with such assertions, disputed the ordinary view of our natural knowledge of natural causes on lines which appealed to Hume, and so influenced the more famous Scottish arguments that made natural causality an affair of sensitive belief rather than, in any sense, of clear ideas. (Malebranche might not have relished such company; but he found it.)

(*b*) The contention that bodies could not act on minds, or minds on bodies, must have seemed much less revolutionary than the contention that bodies could not even act on one another The Cartesian view that minds must be unextended, bodies extended, combined with the doctrine that causal connection presupposes continuity of kind, made some such theory inevitable; and many would have agreed that the Cartesian muddle of the *mélange confus* and the pineal gland was a thing not to be thought of. Malebranche could also quote Cordemoy in support (*R.*, I, III).

Hence parallelism, not interaction, seemed to be indicated in the two respects in which there is *prima facie* evidence of material-mental influence. The human will can produce no physical effects. What happens is that Omnipotence moves my arm when I decide to raise it. God always answers this natural prayer. Similarly a pin-prick does not cause a smart. God regularly produces the smart in me when the pin enters my "machine."

Such parallelism presented no theoretical difficulty to a philosopher who denied the efficacy while affirming the regularity of *all* (so-called) "natural" causes. Psycho-physical parallelism was but a species of Malebranche's universal "natural" occasionalism. On the other hand, the detail of his psycho-physics was subtly elaborated with special reference to the laws of the "machine" in sense, memory, passion, and a certain *liaison des idées* that anticipated much in the later associationism of such men as Hume, Helvétius, or even Hartley, but resembled Hartley rather than Hume inasmuch as the explanation was based upon presumed cerebral traces. (It must be confessed, however, that Malebranche's physiology was somewhat sketchy. He knew something about the circulation of the blood, and supposed a good deal about animal spirits, their traces, and the structure of the brain.)

This part of his doctrine had a theological side. As we have seen, Adam before the Fall was supposed by our author to have had a body that did not suffer from sense-obsessions. After the Fall, he and his offspring did so suffer, and in our present state the woman was chiefly responsible for the perpetuation of original sin. Our mothers conceived us in sin because of the blood connection between the maternal machine (even its brain) and the foetus. In short, our bondage to our senses was an ineradicable maternal impression,

and the scientific Malebranche credulously collected a great deal of reputed evidence on this curious subject.

But what had Malebranche to say about our minds themselves?

Although he accepted and developed Cartesianism in so many ways, he differed acutely from the master in a part of his theory of the soul. He agreed that the essence of the self was thinking, and that the immaterial pensive substance was separated by the whole diameter of being from the incogitative material substance whose entire essence was spatio-temporal He also allowed that it was a contradiction to suppose that the soul could exist without thinking, for in that case it would be a substance deprived of its essence.

Evidently, however, this *pensée* that was said to be the essence of mind was a formal defining property whose correspondence to actual empirical thoughts (such as sensation, imagination, or even reasoning) was a matter for inquiry. In dreamless sleep, for example, there is no evidence of the existence of empirical thoughts. And here Malebranche vigorously asserted a very un-Cartesian standpoint from his earliest writings to his last (e.g. *R.*, Bk. III, Pt. II, Ch. VII, and Ecl. xi).

His contention was that in respect of clear ideas the human mind was *not* as well known as physical bodies. Physical substances (he held) can be represented by clear ideas, but there is no comparable clarity regarding the "modifications" of our minds. We are aware of colour, odour, etc., by internal "sentiment or feeling"; we can prove these sensa to be non-physical and therefore (?) mental. But even the Cartesians disputed whether our minds were literally blue or stinking (Ecl. xi); and when we examined an act of attention, say (and our minds *were* attentive), it was obvious that we had no clear idea why the essence called *pensée* generated the derivative called attention. "Quand je connaîs que 2 fois 2 sont 4, je la connaîs très clairement, mais je ne connaîs point clairement ce qui est en moi qui le connaît" (*R.*, IV, 211). In short, we cannot clearly deduce the specific character of mental acts from their mental essence while we can deduce specific properties of triangles, say, from their spatial essence What knowledge we have of our empirical thought-processes is entirely an affair of internal sentiment, and is therefore, from the scientific point of view, enigmatic and almost negligible.

These contentions, obviously, have great metaphysical importance and are not much the worse because they have a distinctively modern timbre. All that Malebranche had to say about the mind bore the stamp of an unusually candid effort towards self-examination, and showed the "meditative" at his best—at any rate if his descriptions be distinguished from certain of his inferences.

Among these inferences his various reflections concerning the nature of ideas, and certain of his views regarding the human will and its "freedom," should be considered here.

On the first point, critics and commentators (such as Sainte-Beuve and Delbos) are apt to be rather unkind to Malebranche, and it seems plain that Malebranche was both puzzled and annoyed that his remarks about ideas and their nature should be taken with such portentous seriousness by Arnauld and others, and selected for a flanking attack even upon his doctrine of grace. Indeed, he admitted that he had sometimes used the word "idea" rather loosely, although, by his own account, he had always used it very strictly when engaged in discussing Platonic or clear ideas.

The detail of what Malebranche had to say concerning Arnauld's *Des vraies et des fausses idées* deserves a book to itself and has recently been admirably debated by Dr. Church in his *Study* of Malebranche. Here I shall attempt only to indicate Malebranche's point of view and his reasons for clinging to it.

According to Arnauld, in a part of his argument, it was the business of every idea to know. All ideas were "essentially representative." Hence it was absurd to interpose merely representative entities between the mind and the things it knew; for ideas "represented" directly and immediately and would be embarrassed and indeed paralysed if there were such intervening deputies.

Malebranche repudiated such opinions, but from an oblique angle. He was as ready as anyone to deny the existence of certain sorts of representative intermediaries, for he repudiated the crude Aristotelian-scholastic theory of *species impressae*, that is to say, of floating physical images that stuck in the mind. On the other hand, he strenuously denied that any "natural" psychological events could be "essentially representative." To suppose so, he affirmed, was a piece of uncreaturely arrogance, and a confusion between sentiment and knowledge.

His arguments in this connection were of varying merit. For the most part he was content to aver that vulgar sensory ideas cannot give knowledge of anything, and in particular are not infallible (as they would have to be were they *essentially* representative). Yet he also included many arguments that were very much weaker to the general effect that colours, sounds, and all other such "ideas" must be locally and temporally present to the soul. Hence since the mind could not "take a walk among the stars," and since the stars could not walk into the mind without cerebral disaster, it followed (he said) that our minds could *only* represent the sun and the stars and could not know these bodies directly. While the illustration was half a pleasantry the contact-theory of perception implied in it was not a pleasantry; and the argument was weak precisely

because the contact-theory (in an occasionalistic or in any other sense) can so easily be evaded.

Substantially, Malebranche's position was that *clear* ideas did *not* represent, and that vulgar sensory ideas would represent only if it pleased God to create some corresponding (physical) being (*R.*, III, 390). For the object of genuine knowledge was always God, and the finite could not represent the infinite. What a finite being (with God's help) could do was to participate (i.e. to comprehend and be comprehended) in some measure in the divine wisdom. That was *non-representative* knowledge, and had no resemblance to Arnauld's impious views.

Malebranche's doctrine of the human will and its freedom had a warier eye for theological niceties than most other parts of his philosophy. This need not be said of the part of the theory that was a mere consequence of his general theory, e.g. that the alleged physical efficacy of the human will was as much of a myth as any other natural efficacy, and that the fact could be proved to demonstration. But it has to be said of other parts of his doctrine.

He maintained quite simply (and, some may think, quite uncritically) that our personal experience proved that we were "free"—and this despite his belief that we had no clear ideas of ourselves or of the nature of our mental operations. Such freedom, however, had (he said) no physical efficacy, and, strictly, could have no mental efficacy either. The solution was (e.g. *T.N.G.*,[1] 197, and frequently) that freedom consisted in suspense of decision or judgment. Such suspending of decision was in one sense inactivity and nothingness, yet, in another sense, provided the opportunity for the truth to become manifest to our attention. Sin and error were therefore due to a subtle way of doing nothing, and Malebranche, like some other eminent philosophers such as Locke and William James, seems never to have perceived that his proposed solution was a sham. To postpone decision is as much of an action, and, for that matter, as much of a decision, as to decide incontinently to act in other ways, and it has neither more nor less efficacy than any other sort of decision.

The account of mechanics and of psycho-physics were Malebranche's contribution to what might be called natural philosophy. His account of "natural reason" in general was just his account of participation in the Logos (or God's wisdom); and this, as he said (*A.*, III, 155), was attested by thousandfold experience as well as by pure argument. Like Malebranche himself we may assume that this third part of "natural" philosophy was affirmed and made manifest in the development of the other two.

It has already appeared, however (although the point should now be underlined) that "nature," "natural laws," and "natural philo-

[1] *T.N.G.* = *Traité de la Nature et de la Grâce*, ed. 1684.

sophy" existed on sufferance only in Malebranche's considered theory. For him "nature" was a pagan superstition, and although the term might be used in certain contexts with comparatively little risk, it became mischievous folly if "nature" were mistaken for something ultimate and truly independent. "My view is," he said (*A.*, I, 51), "that the *Nature* of the pagan philosophers is a pure chimaera that men have imagined on the strength of the testimony of their senses." It was a convenient boundary, but could not and should not stand for an autonomous province in the cosmos.

Therefore, when Malebranche added two other great general laws to the three already mentioned (admitting that probably there were others still but professing that he knew nothing about them), he believed himself not to be invoking a new spiritual realm to redress the balance of the old but simply to be asserting the sempiternal unity of a theocentric universe. What he held was that the pagans (and all Christian theologians who builded upon Aristotle's or some other pagan philosophy) had omitted two fundamental general laws of reality in their metaphysical speculations. These were, fourthly, the laws by which the angels have the power to act on bodies and through bodies on human minds, and, fifthly, the laws by which Jesus Christ has sovereign (although, like the angels, only occasionalistic) power over the minds and hearts of mankind.

The truths of the fourth and fifth general laws were said to be evinced by the Scriptures and by the operation of the Holy Spirit in the Church. They were not known by reason or by experience. "The dogmas of Faith," Malebranche said (*A.*, IV, 176), "are invariably the foundation of my metaphysical reflections."

Discussing the fourth general law, Malebranche, a persistent defender of the regularity of divine action, went a long way towards denying the reality of sporadic, *ad hoc* miracles. Although he could not deny them all, he tried to generalize the bulk of the received miracles. As he admitted, some explanation had to be given for the accepted fact that the temporal prosperity of the Hebrews (for example their frugal but presumably sufficient rations of manna) corresponded with the nicest precision to the merits of their moral and religious behaviour. So Malebranche affirmed that it was *certain* (*A.*, II, 300) that God had given St. Michael and the angels, but more particularly St. Michael, the power of recompensing or chastening the Israelites in precise proportion to their fidelity or infidelity. St. Michael, however, was only an occasional cause. God answered his prayers about the Israelites quite regularly. As Nicole (a critic) said, God did so because that was the cheapest way. He pooled the necessary miracles.

The fifth law was also occasionalistic. It was Christ *as man* who was the occasional cause of the New Covenant. Christ was the

propitiation for our sins, the meritorious cause of all grace, and also the distributive (occasional) cause of grace when He was established as the chief priest in God's house. "C'est à lui comme homme, mais uni à la sagesse éternelle, qu'il appartient de construire le temple de Dieu vivant" (*A.*, II, 383). This temple was the Church; and Christ, the mediator and intercessor, was not more efficacious than any other finite cause. On the other hand, God was not less attentive to the prayers of His son than to the natural prayers of men. He therefore engendered an holy concupiscence, through Christ's intercession, to counteract the sordid concupiscence that came from the Fall. It is further to be remarked that Malebranche was quite prepared to accept certain paradoxical consequences over which his opponents made merry. "Oui, monsieur," he said (*A.*, I, 465), "Jésus Christ est maître de philosophie, de mathématique, d'arithmétique en ce sens que lui seul enseigne aux hommes toutes les vérités qu'ils decouvrent en conséquence de leur attention."

Before proceeding further with this "unfortunate"[1] theory of grace it seems advisable to say something of Malebranche's system of ethics.

He had little sympathy with the pagans. "Let Greek sages," he said (*M.*,[2] 11), "or Stoics prate of *deus sive natura.*" It was for him to consider the universe of the true God. In ethics God's order was all; it was the sole virtue, and it involved a meditative retirement into oneself, a hearkening to the inner voice "in the greatest possible silence of the senses" (*M.*, 21).

Whatever libertines or soi-disant *esprits forts* might say, ethics was based upon love of a certain sort, viz., the thirst for union with deity, and the love of God's *order.* What had to be subjugated was *mere amour-propre*, Christ being the occasional cause of habituation into saintliness (*M.*, 83).

Everyone desired happiness (cf. *T.N.G.*, 186). It was pleasure that made anyone actually happy (*T.N.G.*, 224). Indeed, good and felicity of some sort were convertible terms. But although all happiness was in some sort good, carnal happiness was a tawdry business that separated us from God. Malebranche's psycho-physics, his doctrine of efficacy, and the rest of his general philosophy were pressed into the service of these contentions.

The second part of the book dealt with our duty. Even the just might commit bad or irregular acts. There must therefore be rules and discipline—in other words, duty. So there were general duties towards God, more special duties towards God's wisdom (e.g. to contemn mere imagination, to avoid mistaking scientific excitement or reputation for genuine meditation). There was the duty of com-

[1] *A.*, IV, 212. [2] *M.* = *Traité de Marche.* H. Joly's edition, 1882.

mitting all our felicity into God's hands; and there were particular duties towards the several persons of the Trinity.

In addition, there were secular and human duties regulating, e.g., the esteem, the respect, and the benevolence that a man should exercise towards his fellows. (Thus (*M.*, 193) there could be no truly social relationship between men who despised one another.) There were universal duties, of which the chief was the requirement that true or spiritual goods should not be denied to anyone (*M.*, 202). There were special duties towards political and ecclesiastical superiors, and there the bishop was greater than the magistrate "as being nearer God's wisdom" although, for the same reason, "the abuse of ecclesiastical authority is more criminal before God than the abuse of royal authority" (*M.*, 213). There were conjugal and parental duties. (Malebranche gave severe injunctions for accelerating the rationalization of young children, though he was fond of them himself.) There were duties towards all equals, "the chief aim of all our duties being to preserve charity among men and to unite ourselves to them in a tender and durable friendship in order to be of service to them and to make them serviceable to themselves" (*M.*, 245). Finally, each man had duties towards himself, and principally the duty of sanctifying himself.

Indeed, there can seldom have been a finer or more closely knit exposition of contemplative and catholic Christian ethics.

But let us return to the theory of grace.

According to Malebranche, the only possible reason for God's action in creating *any* universe rather than in not creating at all was God's glory (*T.N.G.*, 2), and the divine *amour-propre*. Hence all that He did must show forth His glory. Essentially, however, He was wisdom; and simplicity, order, and regularity were the inevitable criteria of wisdom.

Consequently, if God had to choose between, on the one hand, His great love of mankind and His desire that all should taste felicity, and, on the other hand, the simplicity of His orderly ways, it followed that He must choose the latter or (what was impossible) cease to be divine. The multiplication of special miracles was *not* simple or orderly. We had, therefore, to believe that God did not exercise His special providence in this way (unless, if ever, on very rare occasions) and so had to accept the consequence that He (very reluctantly) permitted evil, and a great deal of it, to exist in order that His glory might not be tarnished by His departure from His divinely simple principles of cosmic order. Malebranche fully admitted the reality of evil, and of a certain "disorder" (*A.*, III, 277) in the universe, but he regarded these as minor affairs, however prevalent and however terrible. Indeed, his various estimates of the proportion of persons saved varied between 1 and 5 per cent,

with a preference for the lower figure, and he was horrified at the fact. But, as he thought, fact it was.

It was fact despite God's magnificent provision for its alleviation by making Christ (and His temple the Church) the occasional cause of human salvation. More in detail Malebranche averred concerning this matter that Christ's intercessions were His fugitive particular desires (*T.N.G.*, 131) with the consequence that certain special persons at special times had the special benefit of His intercessions and solicitude. (So far as I know Malebranche ignored the obvious consideration that if God's wisdom and regularity were saved by committing general powers of the order commonly called miraculous to St. Michael or to Christ, there was no good Malebranchian reason why God might not have increased such delegated occasional power to such an extent that no one would be damned. Why should the thing depend upon what Christ happened to think about at any given moment?)

Not unnaturally this doctrine of grace was hotly attacked. Occasionalistic or not, the general implications concerning evil and retribution seemed shocking to some, and Malebranche's doctrine of freedom (on which sin and punishment depended) could scarcely be expected to win general assent. Indeed, it is not surprising that Malebranche was accused on the one hand of embracing Luther's heresy (i.e. of believing in a "servile" will) and, on the other hand, of being far too Pelagian (or libertarian).

Such controversies, however, had little bearing upon the problem of predestination, about which so many moderns are shocked without having taken the trouble to understand the question. Malebranche took it to be obvious, and agreed by all competent theologians, that God, in making the universe actual instead of a mere possibility, foresaw all that would come to pass in the universe, and consequently foreknew precisely who would be damned. He therefore predestined everyone to his fate; for He created everyone, knowing what each would do. Accordingly, the serious question regarding predestination reduced itself to a very fine point. As Malebranche said (*A.*, I, 518), "Toute cette dispute de la prédestination se réduit a savoir, si Dieu veut premièrement sauver tels et tels, et leur donner pour cela telles et telles grâces; ou si Dieu veut premièrement donner sa grâce a tels et tels, et sauver ceux qu'il prévoit en devoir faire un bon usage." On that point the Church had made no definite declaration.

Such, then, are the general lines of Malebranche's Christian philosophy. "I write for philosophers," he said, "but for Christian philosophers who revere the Scriptures and the infallible tradition of the universal church" (*M.*, 83). It would be a serious error, therefore, to regard him primarily as a mere philosopher whose important

contribution was only to the "new world" of Cartesian science. Yet if any man worked for an integrated philosophy based on rationally sifted evidence, that man was Malebranche. Therefore there is nothing really peculiar in the apparent paradox that anti-deistic writers, as well as Jansenists, Jesuits, and others, looked askance at his work.

Few expositors of a Christian philosophy have ever made a more profound and a more original synthesis than he. He was the Aquinas of the new world, and if he did not have quite Aquinas's stature, the reason why his philosophy did not and does not have the same commanding position in the circles for which he wrote is partly that the wreckage of Aristotelianism seems easier to save than the battered hulk of Cartesianism, partly that Malebranche was the last of the great Cartesians, in so far as he was a Cartesian. Indeed, as we have seen, some of his best arguments could be and were used by the empiricists of the eighteenth century. The very clarity and grace of his style contributed to this result.

But let us inquire further into his influence.

On the Continent, Malebranche's views entered largely into the lively Cartesian and anti-Cartesian controversies of the first quarter of the eighteenth century. For example, the redoubtable Bayle entered into the lists, defending Malebranche's opinions against Arnauld's regarding the relations between "plaisir" and "bonheur." (How could there be any credit in renouncing carnal pleasures unless a *good* was renounced?) It is interesting also to note that a short work published in 1770 and largely written by Holbach, entitled *Le Militaire Filosophe, ou Difficultés proposées au R. P. Malebranche,* assumes throughout that Malebranche was regarded at that time as the shadow of a perfectly candid name and argues that he should have adopted a personal not an institutional view in his discussions on matters of religion. Among other Continental authors greatly influenced by Malebranche in the eighteenth and nineteenth century a recent writer (Vidgrain) mentions "Fardella, Cardinal Gerdil, Rosmini, Gioberti in Italy; Ubaghs and the University of Louvain in Belgium; the Abbé de Lignac, Fabre, Branchereau and Mgr. Hugonin in France." Gerdil's book (Turin, 1748) is the only one of these I have seen. In intention the book was anti-Locke even more than pro-Malebranche, but Gerdil believed Malebranche's ideas to be true *dans le fond* (Preface) and adapted a saying of Fontenelle's to the general purport that it was a much easier business to be a philosopher than to be both philosopher and Christian.

Malebranche's influence in this country was very considerable indeed. I have already said something of Hume's attitude towards his views, and most recent works on Hume (such as Dr. Church's or my own) supply fuller evidence. Recent commentators on Berkeley

again are agreed that Berkeley had Malebranche prominently in mind, and Dr. Luce, the latest of them all, in his *Berkeley and Malebranche* (Oxford, 1934), makes much more extensive claims.

As is well known Locke wrote an essay (published posthumously) with the title *An Examination of P. Malebranche's Opinion of seeing all things in God.* This essay extended to some 20,000 words, and Locke's editor explains that it was "not published by the author because he looked upon it to be an opinion that would not spread, but was like to die of itself or at least do no great harm" (*Works*, ed. 1801, IX, 210).

Certainly Locke himself was influenced very little; for Locke could write "I think it is more possible for me to see with other men's eyes and understand with other men's understanding than with God's; there being some proportion between mine and another man's understanding, but none between mine and God's" (IX, 251). The man who could write that might have had some sympathy with Malebranche's Cartesianism, but could have had none with his Platonic Augustinianism. Nevertheless, unintelligible as Locke may have found the fact, there were plenty of neo-Platonists in England in Locke's time with whom Locke had to reckon, and Locke, during his lifetime, did publish his *Remarks upon some of Mr. Norris's books wherein he asserts P. Malebranche's Opinion of our seeing all things in God.* Among other objections, Locke affirmed that Norris (and Malebranche) had fallen headlong into "the religion of Hobbes and Spinoza by resolving all, even the thoughts and will of men, into an irresistible necessity" (X, 255 *et seq.*). [Nevertheless, the pseudo-solution of suspense of will was accepted by Locke in the twenty-first chapter of the second book of his *Essay.*]

Norris, Rector of Bemerton and at one time Fellow of All Souls, was an enthusiastic disciple of Malebranche and of St. Austin, as may be seen in the works mentioned by Locke, and in Norris's *magnum opus*, the *Essay Towards the Theory of the Ideal or Intelligible World.* The same is true of Arthur Collier in his *Clavis Universalis.* Indeed, many of Locke's critics, such as Lowde (whom Locke respected), considered that Locke, Norris, Blount, and Malebranche were all deists of a kind, or at any rate far too rationalistic, so that their differences did not matter very much. They were common enemies of the Church of England. Lowde, however, was a better critic of Locke than of Malebranche, as may be sufficiently indicated in the following excerpts from his *Moral Essays* (1699). Regarding efficacy, "the monsieur betakes himself to his modish way of fencing with ideas" (p. 157). Regarding Malebranche's main thesis, "his Notions seem not here to lye very cleare in his Head" (p. 161).

The chief agent in the spread of Malebranche's ideas in England was T. Taylor, the Platonist, who translated Malebranche's *Recherche*

(= "Search") together with his *Treatise on Grace* into English in 1694. In the dedication to the work Taylor wrote, "This, sir, unmasks the errors which impose on man in abusive appearances. This conducts you in the way to truth, through all the mazes of doubt and uncertainty and gives you the prospect of such an happiness as shall fill the whole extent and capacity of your soul." In a subsequent work, *The Two Covenants* (1704), Taylor said, "What I here offer is bottom'd upon Mr. Malebranche and is but a comment, as it were, upon his text." Taylor also quoted an unqualified eulogy of Malebranche from "the ingenious Mr. Norris," which ran as follows:—

"If you would have a general instrument of knowledge, an universal key, a book that will thoroughly regulate, order, and form your understandings and teach you how to use your intellectual powers for the avoiding of error, and conduct you in the search of truth (a search almost as unsuccessful as that of happiness), that will instruct you in the most fundamental theories and prepare you for all that is further intelligible: that will purify and refine your minds, and brighten, clear up, and enlarge your thoughts: that will rid you of all your prejudices and sensible prepossessions, give you clear and distinct ideas of things, and furnish you with the true and solid principles of science, and with the most necessary and important conclusions. In fine, if you would have a book that is alone a library, and an ever rising and flowing spring of knowledge, that ought never to be out of your hands but always to be read, studied, dwelt and fed upon, till it be digested, made your own, and converted, as it were, into the very substance of your souls, let me recommend to you M. Malebranche *de la Recherche de la Vérité*. . . . For indeed to speak out truly what I think . . . I take it to be upon all accounts one of the best books that is in the world; and that of all human composures there is none that does better serve the interests of truth and of true religion."

ON THE PRINCIPLES UNDERLYING PROFESSOR MILNE'S COSMOLOGICAL THEORY

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On page 95 appears a review of a book by Professor E. A. Milne in which is described a new theory of the metrical character of the world and the interpretation, in the light thereof, of many important astronomical phenomena. Although the author states that his object is not to criticize the general form of the principle of relativity, there appears to be a fundamental distinction between the viewpoints of Einstein and Milne which is frequently emphasized and which it is profoundly important to examine as minutely as possible, for if Professor Milne's claim is established the foundations of physics are essentially modified. The purpose of this article is to compare the outlooks implicit in Milne's theory and the theory of relativity, respectively, in order to see how far, if at all, current ideas require alteration. It should be mentioned that, although Professor Milne speaks of his theory as "the principle of relativity in a much weaker form" (weaker, that is, in its power of restricting natural possibilities, not in its power of representing phenomena) and frequently uses the word "relativity" to describe it, we shall here, to prevent misunderstanding, restrict the meaning of the word to Einstein's theory.

We begin with what is common ground: we shall accept it without discussion. Our minds have an intuitive knowledge of the passage of time, but no such knowledge of space; our various experiences, that is to say, are arranged in a time-order, but they all happen "here." In order to make sense of them we invent a continuous extension called "space" in which we place "events" postulated to be the origins of those experiences, and we extend our notion of time over this continuum, so that each event happens at a particular place, and at a particular instant of time coincident with some instant in the time sequence of our actual experiences. Thus, the experience of a sudden sensation of light is attributed to an event called "the outburst of a new star" which occurred at some assigned place at an instant when some former experience was occurring to the observer. There is at least a large amount of arbitrariness in the metrical qualities we may assign to this space, and also to the time we may assign to each event located in it; all that is necessary is that the assignments shall be logically self-consistent and shall merge continuously into the actual time-order of the observer's

experiences (with which they must always be compatible) when the events contemplated approximate to here and now.

This is the starting-point of both theories: let us see first how relativity proceeds therefrom. Since Milne does not consider dynamics, we may restrict ourselves here to the special theory of relativity. We shall present the arguments in a form slightly different from, though logically equivalent to, that usually adopted, in order to simplify comparison with Milne's procedure.

We begin by defining space in terms of an arbitrarily adopted "rigid scale," to which we assign the property of keeping a constant length wherever (and whenever) it is placed. There is, at this stage, no meaning in asking whether its length *does* remain constant, because constancy is defined in terms of it. Thus, if, according to the ordinary standards of physics, the chosen rod is continuously rising in temperature and therefore, according to those standards, continuously expanding, we shall express this by saying that the ordinary standards of physics are continuously falling in temperature and therefore continuously contracting, our "rigid scale" alone remaining variable. It is perfectly arbitrary whether we choose one standard or another to define constancy.

We soon discover, however, that there is a natural phenomenon (known as the "Doppler Effect") which makes it imperative to choose a particular scale. Briefly, this phenomenon is that the spectrum of light radiated or reflected from a body whose distance (judged by this scale) from the observer is changing, is displaced with respect to the spectrum of similar light radiated from a body permanently at the position of the observer. It is conceivable, of course, that this effect might be ascribable to a "field of force" instead of to motion, or to a physical difference in the sources of the two beams of light, so that our use of the word "imperative" is really not justified. Milne, however, by implication rejects all such interpretations, and insists strongly that the Doppler effect is a kinematic phenomenon, so for our present purpose we may take it as establishing an absolute definition of constancy of distance between ourselves and a distant point; i.e. as defining an absolutely "rigid scale."

We have now to choose a standard scale of time. We choose any phenomenon which is repeated unceasingly in our experience, and define the successive repetitions as occupying equal times. Again, it does not matter fundamentally how irregular those intervals are according to our customary clocks; all definitions of equality are equally valid. We find it convenient, however, to choose a definition in the following way. We set up a definite length of rigid rod, as already defined; place at one end a mirror, and at the other a lamp behind a circular wheel having equally spaced teeth at its circum-

ference, which we can rotate about the rod, which passes normally through its centre. We adjust the mirror so that, when the wheel is not rotating, a ray of light from the lamp, passing through the space between two teeth, is reflected from it back through that space again into our eye. On rotating the wheel we find that the light disappears, that ray which passes between any pair of teeth being now stopped, after reflection, by that one of the teeth which has moved, during the journey of the light, into the position formerly occupied by the space. We adjust the speed of rotation of the wheel so that the reflected light is permanently invisible, and then we define the times of successive rotations (which may be measured by a cyclometer) as equal intervals of time. By making the teeth, spaces, and ray of light sufficiently narrow, we can reach any degree of precision we wish—subject, of course, to quantum theory restrictions which are not in question here.

It is to be noticed that although, for the purpose of description, we have spoken of light travelling from the lamp to the mirror and back again, there is no assumption that light has a constant velocity, or indeed has any existence. Everything could have been described in terms of our own operations and experiences, without considering the passage of any physical agent from the lamp to the mirror.

We next find by experiment that the time-scale given in this way is independent of the length of the rod chosen, in the sense that equal time intervals determined with one rigid rod are equal time intervals determined with any other. The cyclometer readings vary with the length of rod in such a way that the change of reading for any period of time is inversely proportional to the length of rod used. Thus, if we set up two such pieces of apparatus (which we shall call "clock-scales") side by side, with rods of lengths l and $2l$, respectively, and operate them simultaneously over a limited period of time of any duration, the change of cyclometer reading of the first, when that of the second is a, will be $2a$. This means that if (as on other grounds we find it convenient to do) we postulate an entity called "light" which travels from the lamp to the mirror and back, the average to-and-fro velocity of this entity, according to our adopted standards of length and time, is the same everywhere. If, further (as again on other grounds we find it convenient to do), we associate with this light a frequency of vibration indicated by the position of its spectrum, it follows that this frequency defines a time-scale according to which the average to-and-fro velocity of light is the same everywhere in space.

Again, however, we need not think of light at all. In that case our result means that the length of rod divided by the time of one revolution of the wheel is independent of the dimensions of our

instrument. For the sake of brevity we shall not further refer to the freedom of our conceptions from the idea of light as a physical agent. It will be clear that the constancy of the velocity of light is simply a poetical way of stating what time-system we are using: we define our time measure in such a way that light, if we call it into existence, has a constant velocity. The advantage (apart from irrelevant physical considerations) of calling it into existence is that since this time-system is related to our rigid scale in a particularly simple manner which we could never discover except by observation, it is convenient to assign this fact to something in the nature of the objective world, and light is admirably fitted to be that something.

Our clock-scale now enables us to measure the time of any event at which it is present, and therefore the time-interval between any two events in our own experience, since it is now to be regarded as a part of ourselves. We call this interval the "proper time-interval": it measures the passage of our intuitive time. Since both events are "here," there is no space interval between them. We have yet, however, to define the (so far arbitrary) time which we are to assign to an event at which we are not present with our clock-scale. We do this by choosing a time-system such that the velocity of light ($= c$) is everywhere and always constant—not merely the average to-and-fro velocity which we have already established, but the velocity in any direction. If, then, to a particular experience which happens to us at a proper time, t, we assign a cause at a distance, r, we must place that cause at a time simultaneous with our proper time, $t - \frac{r}{c}$.

We can now define uniform motion. Imagine a straight line set out in any direction, along which we place lamps at equal intervals according to our rigid scale. Set a body moving along the line, and arrange for it to light each lamp momentarily as it comes to it. A stationary observer will then see a number of flashes at times $t_1, t_2, t_3, \ldots$ by his clock. The motion is said to be uniform when the intervals, $t_2 - t_1, t_3 - t_2, \ldots$ are all equal, and the common magnitude of those intervals, for a given distance between consecutive lamps, provides the data for measuring the speed of motion.

Experiment now shows that a clock-scale constructed in the manner we have described does not change its behaviour when it is moving uniformly. Thus, if we operate two clock-scales in the same manner, and set one of them moving uniformly along our line, its light does not reappear between the teeth. It therefore gives a value for the velocity of light which is independent of its uniform motion. We can, further, by a suitable mechanical contrivance, record the readings of the moving clock when it receives light-signals from any two neighbouring events, and compare the interval between those readings with the interval between the readings of

our stationary clock for the same events. It then appears that the time-intervals between the events deduced from the two pairs of clock readings are not the same. Hence, since the velocity of light is constant, the space-intervals given by the stationary and moving rods cannot be the same. Nevertheless, a simple combination of the space and time intervals turns out to be independent of uniform motion. Now a space and an associated time were, in the first instance, quite arbitrarily invented in order to simplify the rationalization of our experiences. Obviously, then, that end can be much better served by adopting instead a single extension whose metrical properties are defined by the indications of our clock-scale. In such an extension (called "space-time") the intervals between events are unaffected by uniform motion[1] of the instrument, and so may be called "absolute." When the instrument is present at two events there is no "space" separation, and the interval is identical with the proper time separation. When the events are "simultaneous" in the time-system defined by any state of motion of the instrument, there is no time separation, and the interval is identical with the corresponding space separation.

This account of the special theory of relativity is designed, not necessarily to be completely free from logical gaps (although, it is hoped, it is free from logical errors), nor to present the experiments involved in the precise form in which they are carried out, but to make comparison with Milne's theory as direct as possible. It will be noticed that no assumptions are made. The liberty afforded by the agreed fact that space and external time are originally arbitrary conceptions is accepted fully, and accordingly postulates are made which are restricted step by step only by the requirements of actual observations. The final result is that an extension called "space-time" is adopted and defined by metrical properties given by the readings of two kinds of instrument—scales and clocks. These two kinds are virtually reduced to one by making use of the observed fact that a time-scale is possible which combines naturally with our space-scale to give an invariant measurement of space-time.

Before considering Milne's alternative to this procedure, it will be well to look at his objections to it. They are two—first, the indefinability of the rigid scale; and secondly, the artificiality of "space-time." Let us examine them.

Milne asserts that the rigid scale of relativity theory is an illegitimate conception because a precise description cannot be given to another observer and we can therefore not be sure that two observers are using "identical" scales. Ignoring for the moment the question whether this, if it were true, would constitute a disquali-

[1] General relativity extends this independence to the case of non-uniform motion.

fication, we notice that the charge of indefinability appears to arise from an oversight which, as we shall see, also vitiates Milne's constructive proposals: he appears to have overlooked the significance of the Doppler effect. Here is a prescription for making a rigid scale which is perfectly communicable. Take any solid rod, place at one end a lamp and at the other a mirror adjusted to reflect the lamplight back to a position adjacent to that of the lamp. The rod is rigid so long as the spectra of the direct and reflected light remain relatively undisplaced.[1]

The second objection appears to arise from an inconsistency of thought. It would be intelligible coming from a critic who maintained that space and world-wide time were independent objective existences, but Milne takes as his fundamental standpoint the position that the time-sequence of our experiences is all that is intuitive, and that space (and consequently the time to be assigned to events in space) is an artificial construct. He is therefore denying to relativity the right to one artificial construct while himself adopting two. The fact that those two are (arbitrarily) formed out of the arbitrary measurements of intuitive time does not save them from being artificial. Space-time also is formed out of the measurements of intuitive time—an interval between two events in space-time can be defined as the proper time between those events—and it is far less arbitrary. Milne appears to be appealing to the prejudices of the pre-relativity thinker who regarded space and time as fundamentally independent, without realizing that he is violating those prejudices far more by employing the same measuring instrument for both space and time.

Let us, however, come to Milne's theory itself. The observer, whose *a priori* equipment is simply an intuitive appreciation of the passage of time, selects arbitrarily any recurring phenomenon and, like the relativist, defines the successive repetitions as occupying equal times. He invents a space in which events are situated, and assigns to each event in that space a corresponding time in the following way. He sends to the event a signal, chosen arbitrarily except for the requirement that it can be immediately reflected back to him (or, alternatively, a second observer coincident with the event in question may, immediately on the arrival of the signal, dispatch another similar one to him). He thus obtains two clock-readings, t_1 and t_2, corresponding respectively to the dispatch and return of the signal. He then defines the time, T, of the event as $\frac{1}{2}(t_1 + t_2)$, and the distance, R, of the event as $\frac{c}{2}(t_2 - t_1)$, where c is any arbitrary number.

[1] See the remarks on p. 56 concerning the practicability of proposed observations.

Comparing this with the relativity procedure up to this point, we see that it requires only one instrument (a clock) instead of two (a clock and a scale), and, moreover, the clock remains arbitrary. The source of these two additional degrees of freedom is clearly that the restrictions recognized by relativity—namely, the fact of the Doppler effect, restricting the measurement of space, and the postulate of the constancy of the velocity of light, restricting the measurement of time—are not accepted. It follows inevitably that Milne's theory must be relatively indefinite in two respects. The first is that it does not provide for the observed absoluteness of relative motion. However the distance of a body is "changing," we can always choose a clock so that $\frac{c}{2}(t_2 - t_1)$ remains constant in time, and the body is consequently judged to be at rest, notwithstanding the fact that the Doppler effect gives us an absolute criterion of its motion with respect to the observer. Milne appears partly to realize this defect, for he writes (p. 26): "When we dispense with the concept of the rigid length-measure it is not at once apparent what is meant by being 'relatively stationary.' " He does not seem, however, to grasp the full extent of the damage it does to his scheme, for he goes on: "I have in fact analysed this 'stationary' problem, with surprising results, but they will not be treated here." Since the problem vitally affects the foundation of the theory, it is essential that it should be treated here.

Let us, however, suppose that for the "arbitrary" clock we choose a particular one which distinguishes between relative rest and motion. The Doppler effect requires that this particular one shall be synchronous with a light wave. Then, as compared with relativity, Milne apparently has the advantage that he uses only one measuring instrument instead of two, and has no need to postulate any constant velocity. But actually he has postulated a constant velocity. He cannot, even with his particular choice of clock, explain the Doppler effect without making his signal a beam of light, and he himself shows that his postulates require that the signal velocity shall be c, which he has chosen to be constant. We see, therefore, that if Milne's theory be modified so as to take account of distinctions which actually exist in nature, it becomes—up to the point we have so far reached—identical with relativity: in so far as it differs from relativity it is defective.

The next step in the relativity procedure—namely, the consideration of the behaviour of clocks and scales in relative motion—is not possible to Milne because he has no criterion of relative motion. Accordingly, we must regard his theory, as so far described, as his suggested substitute for special relativity. Consisting as it does merely of a definition of space and time extensions in terms of clock

readings, it can scarcely be regarded as an adequate substitute, and would doubtless not have been suggested had it not been intended later to amplify it by a postulate chosen to make it capable of dealing with a particular problem—namely, the structure and history of the universe as a whole. Those who are interested in the foundations of scientific thought will perhaps challenge the right of a theory thus to take to itself additional postulates before it has shown evidence of superiority to pre-existing ideas, and when it is remembered that relativity is not merely much more neatly fitted to the facts of nature, but has also proved itself by a natural extension capable of comprehending the whole phenomenon of gravitation as we know it, which Milne's theory as yet shows no power to do, the challenge becomes more insistent. It becomes clamorous when it is considered that the postulate refers, not to the realm of nature which we know, but to the universe considered as a whole, which is a hypothesis. It may fairly be urged, however, that, from the scientific point of view, subsequent comparison with observation may justify the postulate, and if such comparison is favourable the foundations may then be put in order. Let us therefore consider the extension of the theory.

Milne proposes a "cosmological principle," according to which, if A and B are two "equivalent" observers, the totality of A's observations on the universe are described by him in the same way as B describes the totality of *his* observations on the universe. (The definition of "equivalence" will be given in a moment.) Milne recognizes, of course, that all observers in the universe may not be equivalent, and also that universes are conceivable which will be described differently even by equivalent observers. Out of all the possibilities, however, he selects only equivalent observers and calculates what kind of universe will be described by them in identical terms. The cosmological principle is justified in so far as the actual universe is of this kind. Thus the ultimate appeal is to observation, although Milne's "own private opinion is that the universe must satisfy the cosmological principle, because it would be impossible for an act of creation to be possible which would result in anything else" (p. 69).

Two observers, A and B, each making his observations in the manner already stated, are equivalent when A can describe the totality of his observations on B in the same way as B can describe the totality of his observations on A. Such observations are, as we have seen, simply clock-readings, and the descriptions are functions of clock-readings. Equivalence implies that the functions are of the same form for A and B. Two such functions are essential. First, A can determine the distance (R) of B at various times (T). In general, R will vary with T, according to some function, $R = c\phi(T)$.

Secondly, by telescope or intelligible communication, A is assumed to be able to read B's clock at each instant, T, by his own clock, and he can express the succession of these readings (t') by a function, $t' = f(T)$. B can similarly observe the distance (R') and clock-reading (t) of A at various times, T', determined by his own arbitrarily chosen clock, and obtain functions, $R' = c\phi'(T')$; $t = f'(T')$. Then the mathematical conditions for the equivalence of A and B are that $\phi \equiv \phi'$ and $f \equiv f'$.

We do not intend to comment generally on the possible activities of the observers in question, but it is important that they should be recognized. It is clear that since, in the applications, A and B may be on different spiral nebulae and use atoms as clocks, practical difficulties are not recognized. If a process is conceptually possible, the fact that nature has provided no means for making it actual is irrelevant, and Milne's promise (p. 23) to "state tests, which could actually be carried out, by which observers in different places and in relative motion could compare their clocks" must be interpreted accordingly. But there is one point in which Milne's observers differ fundamentally from those of relativity—namely, that they must be able to transmit across space not merely physical signals but *ideas*. Whether the transmission is to be "telepathic" or by the assignment of symbolic meanings to the signals used is not stated, and, except from the practical point of view, is immaterial. The point is that the theory is thereby converted from a physical into a psycho-physical one.

This is not a detail; it is fundamental. It is easy to show by an argument which Milne frequently uses (not always, we think, legitimately, but we have no space to discuss that question) that without its psychological element the theory has no meaning. A and B might conceivably ensure that they use the same constant, c, by making some appropriate use of the instant at which they are assumed to be momentarily coincident; they might conceivably read one another's clocks at later times by super-telescopes; but in order to determine that their functions, ϕ and f, are identical, they must transmit ideas across space. Without such transmission the condition of equivalence is unverifiable. But what is unverifiable has no physical meaning. Hence equivalence, robbed of its psychic aspect, has no physical meaning.

Milne is evidently aware that there is some point of importance here, but he has hardly, we think, realized what it is, for he seeks to locate whatever vulnerability is thus introduced, in the underlying idea of relativity rather than in his own application of that idea. "Relativity and solipsism," he says (p. 16), "are incompatibles. Relativity is the complete denial of the solipsist position. Relativity is the comparison of experiences of different observers." This is

clearly inaccurate. Relativity is, in fact, completely solipsistic. We do not mean, of course, that every relativist must accept all the philosophical implications of solipsism, but that he must not in his physical theory assume anything inconsistent therewith. In the account of relativity which we have given we have deliberately refrained from introducing a second observer, and, so far as observation goes, have identified even the first with an unconscious measuring instrument. It is true that relativistic literature abounds in references to "another observer," but the phrase is invariably a convenient way of saying "myself in a different position in space-time." Changing to another observer and changing one's own co-ordinate system are identical processes, and if there is in the universe an observer whose point of view cannot be represented by a change of co-ordinate system, relativity takes no account of him. Incidentally, this disposes of the objection to the transport of rigid scales, for since the scale is the observer, every other observer considered automatically uses the same scale.

It is, in fact, one of the most satisfactory features of the general theory of relativity that it makes such a definite distinction between changing one's point of view in a physical system and changing the system. The former corresponds to a change of co-ordinates; the latter to a change of metric unattainable by a change of co-ordinates. This simplicity is given full recognition by Milne. Indeed, although (p. 5) he says clearly that "a transformation of co-ordinates by a single observer . . . merely gives an alternative description of the phenomena by the same observer," he appears to contradict this on the same page by saying "the general theory of relativity . . . often employs co-ordinates . . . constructed from observations made partly with the observer's own measuring apparatus and partly with the apparatus of other observers." Actually, the general theory of relativity does not construct co-ordinates out of observations: it expresses observations in terms of co-ordinates.

Milne's restriction to equivalent observers is easily seen to be tantamount in many respects (though, of course, not entirely) to the special relativity restriction (transcended in general relativity) to measuring instruments in uniform relative motion, and such observers only are considered in his derivation of the Doppler effect formula, Lorentz transformation equations, etc. But all these things have, in fact, been determined by a single observer, for there is no evidence that the universe contains another observer in Milne's sense of the word (i.e. an intelligent being who communicates with us by Milne's method). The fact that there are actually many experimental physicists does not affect this statement, because they pool their observations and act as one. Consequently, Milne's derivations—apparently proceeding from his imperfect system of measurement

supplemented by a psycho-physical postulate—must really proceed from quite a different origin, since they give the familiar results.

Let us take the Doppler effect as an example. Milne introduces his two equivalent observers, A and B, but, as we have seen, he cannot in actual fact make use of their equivalence because the Doppler effect is a physical phenomenon discoverable by a single observer. The unconscious elimination of observer B is made at the outset. In order to become equivalent B must adapt his clock to conform with the behaviour of A's, and he is not thereafter at liberty to change it. Milne, however, assigns to him not the clock prescribed by this necessity, but an atom, and to A a similar atom. No attempt is made to show that such atoms are consistent with the condition of equivalence. Furthermore, the signal, which so far has been arbitrary, becomes identified with light actually radiated by those atoms. Virtually, therefore, B with his equivalence-ensuring clock is eliminated, and in his place is put an ordinary, physical atom, while A remains the sole observer in the universe. The conclusion drawn (p. 37) that "any suggested explanation of the red-shift observed in a distant nebula as 'due to' other than relative velocity can only be maintained by abandoning the 'equivalence' of the distant nebula to ourselves, in the sense in which we have defined 'equivalence,' " can therefore scarcely be regarded as convincing.

In the course of development of his theory, Professor Milne makes several criticisms of general relativity which seem to be based on misunderstanding. It is impossible to consider them in this article, which must be limited to a discussion of the basis of the theory; nevertheless, it is desirable to state that those criticisms should not be accepted without examination. It is only fair to add that Milne expressly disclaims any feeling of hostility to the general theory of relativity, and we do not for one moment suggest that the criticisms are unfair, but we do believe that he is not fully aware of the strength of the position he attempts to overthrow. The general theory of relativity is by no means final truth. It is unsatisfactory in form in that what it immediately indicates is a solution for which one has to discover the problem. It is dependent on the use of co-ordinates, which have no physical meaning. And it violates its own principle in that its reach exceeds its grasp—it gives us complete world-lines of which we can observe only the intersections. But defects such as these are inevitable in the present state of knowledge, and the almost inviolable logic of the theory, combined with its remarkable success in application, makes it extremely unlikely that it will be overthrown in our time except by some alternative which gets beneath its foundations.

The fact is, that while Milne's ultimate contention that all physical measurements should be expressible in terms of our intuitive expe-

riences—which in the physical world are confined to events in a time sequence—is perfectly sound, the time is not yet ripe for such an expression. Successfully to combat relativity, one must refuse to go beyond those experiences and—somewhat in the manner which is beginning to be revealed to us by quantum phenomena—construct a logical "nexus" which has no need of a continuous extension of space or time. Milne deserts his programme at the beginning. He puts out a continuum in which events are to be located, and from that moment there is little doubt about the result: no matter how he specifies the nature of that continuum, either his theory must be equivalent to relativity or it must be defective, for relativity, as we have seen, takes the inevitable course, making no assumptions at all. There is room, of course, for further generalization of relativity—in the direction of a unified field theory, for instance—and it may be that the Finsler geometry, to which Milne's work calls attention, will be adaptable to that end, but such generalization will not displace, it will include relativity as we now know it. There seems to be no escape from this conclusion. Relativity must either be uprooted as a whole, or extended: there is no possibility of patching it up.

The question that arises is therefore: Has Professor Milne re-expressed the ideas of relativity in a form better adapted to the solution of certain important problems, or has he provided an expression of relativity which lends itself more naturally than the current expression to further generalization, or has he simply wasted his time? This question demands an answer, but so long as the theory rests on its present unsatisfactory basis no answer can be given. It is much to be hoped that Professor Milne will rigorously reform the foundation of his work so that it may appear in its true shape. It is hard to believe that the brilliant mathematics and elegant graphical processes which his book displays are not the solution of some problem, but the question to be faced is—What problem? Until that is settled it is impossible to decide whether his work bears any relation to nebulae or cosmic rays, or indeed anything at all in nature.

THE PHILOSOPHY OF MAIMONIDES AND ITS SYSTEMATIC PLACE IN THE HISTORY OF PHILOSOPHY[1]

Dozent Dr. Phil. S. ATLAS

Moses Maimonides, born March 30, 1135, the eight hundredth anniversary of whose birth we now commemorate, is one of those universal spirits who mastered the whole realm of knowledge of their time. His fruitful and extensive literary activity covered many fields: astronomy, medicine, Talmud, and philosophy. His works on medicine were in former times highly esteemed. In the field of philosophy he strove for the synthesis of Aristotelianism and revealed religion, an endeavour which was of paramount importance for the later development of philosophic thought. His influence as a philosopher is not confined to the sphere of Jewish thought, but has left a lasting impression on the history of philosophy in general.

In his chief philosophical work, *Guide for the Perplexed*, Maimonides set himself the task—as the name of the book indicates—of being a guide for those who are perplexed by the problem of reconciling philosophy with biblical religion. He sought to harmonize religion and philosophy and to resolve the apparent contradictions between the two spheres. He pursued this task of reconciliation not on the basis of the admission of two distinct spheres having different aims and purposes whose limits were to be defined and adjusted, but on that of the recognition of their essential unity. Metaphysical truth and religious truth, he claims, are not two different kinds of truth but the true concepts of religion and philosophy are identical. Real religious belief is also knowledge, whereas faith if it is not at the same time a form of knowledge is valueless. This intellectualism leads Maimonides to declare the knowledge of God and the World to be the most sublime ethical task of man. For only through knowledge does man come nearer to God.

True religion and philosophy have the same task and pursue the same aim, namely, to enable man to participate in the eternal through the knowledge of God. For immortality, the participation in the Divine, man achieves only through knowledge of God and of the universe. Thus, the acquiring of knowledge becomes the ultimate ethical task to which all other tasks of man are subordinated, and the supreme value to which all other values are merely subsidiary.

[1] A lecture delivered on May 8, 1935, at Cambridge, by invitation of the Faculty of Mental and Moral Science of the University.

But, since the true concept of religion can be obtained only by a philosophic process of thinking of which not everyone is capable, it is the task of the theologian who possesses the true concept of religion to discover in the Scriptures the esoteric contents which coincide with the philosophic contents. On the other hand, in studying the Scriptures, what we shall find in them is to be determined by our own reason. Reason is the ultimate judge in matters of truth, and what reason declares to be untrue cannot be made the content of faith. Since reason compels us to apprehend the concept of the unity of God in such a way as to exclude every multiplicity of positive qualities and attributes, for His unity is an absolutely simple one, therefore the anthropomorphic passages in Scriptures have to be so explained that they can be harmonized with the concept of unity as taught by philosophy.

Now at the point where Maimonides departed from the basis of Aristotelian philosophy, namely in the problem of Creation, he said that it was not Scripture which compelled him to maintain the thesis of creation out of nothing; for, if reason should compel him to accept the Aristotelian doctrine of the eternity of the world, he would interpret the passages in the Bible in such a way as to harmonize them with reason. On the question of Creation, however, reason, which is the only determining factor, does not give a definite answer; therefore we can accept the literal sense of the Scriptures.

The relation between philosophy and theology, according to Maimonides, can best be expressed by a picture which Kant used. In view of the well-known saying that "philosophy is the handmaid of theology," Kant said: "It can be admitted, but we have to put the question for consideration, whether she is a handmaid who follows bearing the train of her mistress or whether she goes before bearing a torch to illumine her path." By raising knowledge to the position of the sublime ethical task of man and by subordinating faith to knowledge, Maimonides has thus declared philosophy to be the handmaid which is bearing the torchlight of reason to illumine the way of religion.

By philosophy, the contents of which Maimonides holds to be identical with the true concept of religion, he means the philosophy of Aristotle. Since Aristotelian philosophy contains principles which are at variance with the teachings of revealed religion, Maimonides was compelled to examine the Aristotelian system and to reconstitute it to bring it into harmony with the teachings of religion. He accepted those Aristotelian principles which seemed to him to be necessary logically. Maimonides' concept of God as *prima causa* as well as the proofs for the existence of God are all Aristotelian. On the basis of the movement of the world which cannot be infinite he proceeds to the idea of God as first unmoved mover. It was the method of the

Mutakallimun, the school of Arabic theology, to prove the existence of the world in time, that is to say that the world was created, from which follows the existence of God as creator. Unlike the Mutakallimun, Maimonides proceeds to prove the existence of God quite independently of the question as to whether the world is eternal or exists in time.

Following the proofs of the existence of God on the presupposition of the eternity of the world Maimonides examined closely the Aristotelian proofs of the eternity of the world and found them inconclusive.

The problem of creation was the centre of philosophical interest and was the principal matter of controversy between the followers of Aristotle and Mutakallimun, the Arabic theologians. Whilst the philosophers taught the eternity of the world, that there is only a relative and not an absolute becoming, the theologians on the other hand regarded creation out of nothing as an irrefutable principle of belief.

As Maimonides set himself the task of harmonizing the philosophy of Aristotle with revealed religion, he solved the problem by lifting the whole question on to a different plane. By reason alone, it is impossible to prove apodictically the creation of the world, as claimed by the Mutakallimun, and it is no less impossible to prove the opposite Aristotelian doctrine that the world is eternal. So, as reason is inadequate to solve the problem, it can be left to revelation to provide the solution.

If the proofs for the eternity of the world were conclusive, it would be necessary to interpret the biblical passages relating to creation accordingly, for revelation cannot be contrary to reason. Consequently, the creation of the world must be made probable in the light of reason, in which case revelation can then be shown not to be contrary to reason.

The arguments for the eternity of the world advanced by Aristotle and his followers, Maimonides classified into those based upon a scientific knowledge of nature and those which have the concept of God as their starting-point. To the first class belongs, for instance, the argument from movement. It is impossible to maintain that the phenomenon of movement had a beginning in time, for the supposition of a temporal beginning of movement involves a transition from potentiality to actuality, which is itself movement. Such an hypothesis gives rise to a process of infinite regression, without actually reaching an absolutely first movement. Likewise, matter as a result of an act of creation, presupposes the existence of other matter from which it could be formed, since matter is an indispensable condition of all physical becoming.

The proofs for the eternity of the world which are based on the

knowledge of nature, Maimonides rejected by maintaining that it is impossible to argue from the process of becoming exemplified in a part of nature to the origin of the world as a whole. The creation of the world cannot be refuted on the basis of knowledge of nature, in which there can be no becoming without previous being, since the origin of the world as a whole is beyond the limits of given nature and therefore beyond the sphere of knowledge. He admits that there is no *creatio ex nihilo* in the realm of natural phenomena, but it does not necessarily follow from this that the origin of the universe may not be due to a creative act of God. The mistake which underlies all these proofs consists in the confusion of the process of becoming as experienced in the world with the origin of the world *in toto* which is beyond the realm of experience. It is the same mistake into which one would fall by deducing the conditions of embryonic life from the circumstances of adult existence.

The proofs for the eternity of the world, which have the idea of God as their starting-point, and which Maimonides rejected, can be summarized briefly as follows: creation out of nothing by God cannot be maintained, for the reason that it would imply that God had passed by the act of creation from a state of potentiality to that of actuality, and such change of state could only be brought about by another agent. Likewise, it cannot be maintained that God is active at one time and inactive at another, since He is not subject to accidents which could affect His will.

Maimonides rejected these propositions by pointing out the underlying mistake involved in confusing human will and action with the will of God and a divine creative act. Human will is subject to determining conditions, and human creative action involves a transition from potentiality into actuality, whereas God's will and creative power are entirely distinct from man's and have only the name in common. It is thus impossible to infer from the nature of a human creative act the nature of a divine creative act, since the two are totally different.

Maimonides' repudiation of these proofs for the eternity of the world is bound up with his theory of the negative attributes of God, since the distinctiveness of divine and human will, precluding the possibility of inferring the nature of the former from the latter, has its roots in his thesis that the divine attributes cannot be defined positively.

The objective of the arguments of Maimonides in regard to the creation of the world is only to show its acceptability, for theoretically the creation of the world can no more be proved than its eternity. Decisive for the supposition of the creation of the world is the religious purpose, which demands a supernatural creative God. For the contrary idea, that of eternity, involves the concept of God,

not as a free creative spirit, but only as a necessary producing cause. If the creation of the world is accepted as a logical impossibility, this would imply that the whole of nature is a necessity; and man, being a part of nature, can possess no free creative personality. The acceptance of the eternity of the world would destroy the moral factor in the concept of God. A God which is a necessary producing cause, cannot be an ideal for morality. The principle of *Assimilatio Dei*, that God is an ethical ideal, is so central in the Maimonidean conception of God, that from this follows the demand for the creation of the world.

In this problem of *creatio ex nihilo*, Maimonides followed a course similar to the critical method of Kant. He does not try to prove the creation of the world in opposition to Aristotle in order to give a basis for faith, as was the case with the Arabic Kalam. He tries only to disprove the eternity of the world. He has thus transferred the problem of *creatio ex nihilo* from the sphere of theoretical knowledge to the sphere of faith, of practical ethics. On the question of *creatio ex nihilo* Maimonides' method comes very near to that of Kant in regard to the proofs of the existence of God.

The divergence of Maimonides from the Aristotelian basis at this point involved not only the question of creation and eternity, but also the concept of God and the concept of Man. According to Aristotle, God is not a free creator, but is Himself subject to the force of necessity. Likewise, the validity of the principle of causality in the world, which has its origin in God as *prima causa*, is absolute and unlimited. Thus the world does not possess a creative character; and man, as part of the world, is subject to the same principle and cannot be free in his actions.

Maimonides, on the contrary, in maintaining the thesis of the creation of the world out of nothing, apprehended the concept of God in a fundamentally different manner from Aristotle, in that he conceived God as an absolutely free creator, thus giving to the world a creative character and regarding man as a free creative personality. There is thus a correspondence between the concept of God and the idea of man, and both find expression in the same attitude towards the problem of creation.

The points upon which Maimonides differs from Aristotle are of such far-reaching significance that one is led to challenge the generally accepted view that Maimonides' system is Aristotelian. Certainly, Maimonides stands on the Aristotelian basis; but the points wherein he deviates from the Aristotelian path are not merely in details, but are so fundamental as to affect his attitude towards the whole system of thought, and the hall-mark of a thinker consists not in what he has in common with others but what is unique to himself.

Maimonides' ethical concept of God is clearly expressed in his

theory of negative attributes. The idea of the absolute unity of God excludes the possibility of ascribing to Him positive attributes, since positive attributes involve a duality of subject and predicate. The only positive attributes which can be ascribed to Him are the ethical ones. The bearing of the theory of negative attributes is much wider than appears at first sight; it pervades the whole system and many problems are solved by Maimonides on the basis of this theory.

Every positive description of an object is necessarily either a statement of the conditions and causes of which it is a result, or an analysis of the essential elements of which it is composed. The first kind of description can only apply to conditioned objects, i.e. objects whose causes are beyond themselves; while the second type of description refers only to objects composed of a number of different elements. From the idea of the absolute unity of God, and from the concept of God as the unconditional and uncaused, follows as a corollary the impossibility of applying to Him these two forms of description. Since the essence and existence of God are identical, and His being is a necessary existence, whereas all other beings are conditioned, and their existence can only be regarded as possible existence, it is impossible to apply to God any definition which involves a relation between Him and other beings, for relationship can only obtain between things which have something in common.

All attributes which can be applied to God must, therefore, have only a negative character. That is, they express a negation of imperfection, e.g. the attribute of omniscience means a negation of ignorance; omnipotence is a negation of impotence; eternity is a negation of cause and of conditions. Every attribute which ascribes to God a perfect quality can only be expressed in a negative form, in which any comparison in respect of such qualities between Him and other beings is excluded. For, ascribing omniscience in a positive sense would imply that His knowledge is of the same kind as the knowledge of man; and this would involve limitation. Only when the attribute is understood in a negative sense, e.g. that omniscience is negation of ignorance, is the knowledge of God expressed in the highest degree, without limitation.

The real reason for ascribing negative attributes to God is to express His infinite perfection, without endangering the concept of absolute unity, and the idea of the Divine perfection is attained by means of the denial of imperfection. The only positive attributes which can be ascribed to God are ethical attributes, which refer not to His essence but to His actions; and the idea of absolute unity is thus not endangered. These ethical attributes imply the idea of God as a symbol to man of ethical perfection. Accordingly, the expressions in the Bible must be explained either as negative or as ethical attributes.

By the negative definition of the knowledge of God, Maimonides overcomes the difficulty in regard to the problem of the freedom of the human will. In contradistinction to modern philosophy, where the problem of free-will consists in its involving infringement of causality; in the Middle Ages the question of free-will was considered in connection with the idea of the absolute knowledge of God, which includes fore-knowledge. In modern times, the problem is postulated: how is freedom of action possible if the validity of the principle of causality is absolute? In the Middle Ages, the problem took the form: how can freedom of will be harmonized with the absolute knowledge of God, since this includes fore-knowledge of the future? Maimonides countered the problem by stating that the knowledge of God is absolutely distinct from human knowledge in that it can only be defined negatively. Fore-knowledge would exclude freedom of will only if knowledge is defined positively; as divine knowledge in contradistinction to human knowledge is defined negatively, then the question, "How can freedom of will and the fore-knowledge of God be harmonized," is unjustified?

The idea of the absolute unity of God, with the consequent exclusion of every positive definition, is a neo-platonic one. Maimonides utilized it to elaborate his ethical concept of God which is the ultimate aim of his philosophy. The neo-platonic conception of God can be regarded as leading to the ethical concept of God, which is manifest in Maimonides' doctrine that the only positive attributes to be ascribed to God are ethical ones, and which shows itself in many other points of his system.[1]

As a necessary consequence of his theory of negative attributes, it follows that our knowledge of God is confined to His ethical attributes only, to His actions, not His essence. Any metaphysical knowledge of His being is impossible. And in the scale of values which he established in accordance with Aristotle, he subordinated ethical perfection to contemplative, since the highest value for man is knowledge of God and the universe. The faculty of pure thinking and contemplation constitutes the essence of man which places him above all other beings. All the same, knowledge of God means knowledge of His ethical attributes, and this involves the idea of God as an ethical symbol for man and the moral command to man to follow God in His creative work. Thus the highest value of knowledge of God turns out to imply a moral imperative commanding *assimilatio dei*—a striving to approximate to the moral idea symbolized in the idea of God, an imperative to become a co-creator and co-operator with God.

In denying the possibility of metaphysical knowledge of God Maimonides set limits to the validity of human reason. Maimonides,

[1] cf. Julius Guttmann: *Die Philosophie des Judentums*. München, 1933, p. 185.

with all his belief in human reason, is conscious of its limitations, and always maintains a critical attitude towards it. The validity of human reason refers only to knowledge of the sublunar world. Whatever transcends the sublunar world is beyond the realm of knowledge. There are problems for which human reason is inadequate. Just as the metaphysical essence of God cannot become an object of knowledge, and the problem of the eternity or the creation of the world passes human comprehension; so, too, the ultimate purpose of the universe as a whole is a metaphysical problem which cannot be scientifically approached.

In this delineation of the realm of knowledge and the realm of transcendence which is beyond knowledge, is manifest that critical attitude which relates Maimonides to the critical philosophy of modern times.

In accordance with Aristotle, Maimonides teaches that the principle of purpose governs all phenomena. All phenomena have to be teleologically explained. This is the object of natural science, to find out the final cause of everything, which is the most important of the four causes. But it is impossible to explain teleologically the universe as a whole. For Aristotle, who considered the world not as the product of a creative act of God, but as a necessary effect of the existence of God, the question of its purpose cannot arise. On the other hand, those who taught the creation of the world found it necessary to explain its purpose. They therefore considered man the purpose of creation. Maimonides rejected this theory and maintained that the teleological principle has its application immanently to all worldly phenomena but not transcendentally to the cosmos as a whole. The question of the purpose of the world is, by its very essence, unanswerable, for if we take man as the final purpose of creation, then the question remains, "What is the purpose of man?" and so, necessarily, we continue *ad infinitum*. Thus the question of the final purpose of creation belongs to those metaphysical problems which cannot be solved on a scientific basis.

By denying the possibility of determining the purpose of the universe, Maimonides is far in advance of his time. In general, the geocentric conception of the world leads to the anthropocentric conception of man as the purpose of the universe. Maimonides, by opposing this view and by maintaining that the question of the ultimate purpose of creation cannot be scientifically approached, anticipated the conception of Descartes, who centuries later denied the possibility of apprehending the purpose of creation and considered it presumptuous to seek to understand God's design. (*Meditationes de primâ philosophia*, med. IV.)

The main problems with which the age of Maimonides was concerned were: God and the world, God and man, and God and revela-

tion. The first of these problems was: How is *creatio ex nihilo* possible, since creation out of nothing seems to be contrary to the idea of God's all-perfection? The next problem was: How is human free-will possible, in view of the fore-knowledge of God? And the third problem concerned itself with the possibility of revelation.

Maimonides attempted to find a solution to all these problems which would at the same time be acceptable both from a religious and from a philosophical point of view. Concerning the first problem, his position is opposed to that of Aristotle who applied the principle of necessity to the world as a whole and considered the world as eternal. Similarly, Maimonides rejected the theory of the Mutakallimum who held that the divine act of creation is an eternal process and accordingly denied the existence of natural law. Maimonides, while maintaining the existence of natural law, regarded the universe as a whole as having its origin in a free creative act of God. The principle of necessity which prevails in nature is not applicable to the universe *in toto*. By his conception of God as a free creator and not as an absolutely quiescent being, together with his doctrine of the negative attributes, Maimonides brought to fullest expression his ethical concept of God. He thus invests the universe with a creative aspect and conceives of God as a symbol of man's ethical perfection. And here too is found the basis of the freedom of the human will. Without freedom of will there can be no morality, for true morality implies independent creation. The attribute of God's omniscience, which involves fore-knowledge, does not exclude human freedom of choice, since omniscience is not to be defined positively but negatively as a denial of ignorance. Further, revelation is not to be considered as an infringement by God of natural law. Prophecy, like all phenomena in nature, is subject to the laws prevailing in nature, since it is dependent on ethical and intellectual perfection, without which prophecy would be impossible. On the other hand, prophecy is not merely a natural phenomenon which must necessarily appear when certain pre-conditions are satisfied, but is ultimately dependent upon the divine will without which there can be no prophecy.

The work of Maimonides exerted a profound influence on general philosophic thought. To men like Spinoza, Moses Mendelssohn, Solomon Maimon, and Hermann Cohen, Maimonides' works were the source of inspiration for their independent philosophic thought, although subsequently they went their different ways.

The Kantian Solomon Maimon—his surname implies his reverence for Maimonides—never wholly lost touch with the philosophy of Maimonides. Many points can be traced in Solomon Maimon's thought which show his close connection with Maimonides. Hermann Cohen, the founder of the "Marburg School" of Neo-Kantianism,

loved to emphasize the relation between his own thought and that of Maimonides. In the theory of negative attributes of Maimonides, Cohen saw Kant's ethico-theology which taught the idea of God as bound up not with nature but with ethics. He recognized a spiritual affinity with Maimonides, whose teaching concerning negative attributes and the method of negation leading to the idea of the divine perfection Cohen saw to be closely related to his own "Logik des Ursprungs," i.e. "The Logic of Generation." In both systems it was through the method of negation that all existence was built up. In the case of Maimonides this led to the idea of the all-perfection of God; and in the case of Cohen the method of negation, that is, "the infinitesimal method," aimed at the ordered Cosmos.

In his *Characteristics of Maimondes' Ethics* Cohen tried to interpret the ethics of Maimonides in his own spirit—as the ethics of critical idealism. It is true that some aspects of Cohen's interpretation are not in accordance with Maimonides' actual teaching. Cohen misinterpreted Maimonides' conception of the moral ideal as an infinite process, whereas Maimonides stands upon the Aristotelian basis, the basis of The Mean. All the same, Cohen reached his standpoint through the philosophy of Maimonides, with which critical idealism has much in common. The moral concept of God is fundamental to both.

The significance of Maimonides consists not in the fact that he connected the Aristotelian philosophy as interpreted by the Arabs with revealed religion. His importance consists rather in the way in which he modified the Aristotelian philosophy, and in the original method by which he gave a new validity, in spite of his Aristotelianism, to the moral concept of God. The old prophetic idea of God was always breaking through in his thought. In spite of the radical changes in philosophical thought which have occurred since his time, Maimonides, through his original and profound treatment of religious problems, through the infectious enthusiasm of his philosophic attitude and through his boundless belief in human reason, has retained his significance even for our time. And even if his work does not have the same paramount significance which it had in former times, it is still important for our own day. The realm of philosophy is unlike the realm of natural science, wherein the new physics has completely superseded the older physics. There are problems in philosophy which are eternal, old yet always new; the forms of the problems may change, the content remains the same. Thus philosophy is different from natural science wherein the history of science does not play so essential a role as does the history of philosophy in the sphere of philosophy. Physics, for example, as such, is not connected with the history of physics. But with regard to philosophy, even if it is not to be identified with the history of

philosophy, still its study is inseparable from that of its history. In philosophy ancient thinkers are constantly awakening to new life, and are freshly interpreted in connection with newly arisen forms of thought. While Aristotelian physics has only an antiquarian value, some aspects of Aristotelian philosophy are represented in current philosophic thought. It is sufficient to indicate that so recent a work as Hans Driesch's *Die Philosophie des Organischen* is nothing else than a modern version of Aristotelianism. Similarly, Plato has been freshly interpreted and accommodated to new forms of thought. So too, Maimonides' philosophy can be considered and interpreted in connection with the religious and philosophic problems of our own day.

As for Maimonides' influence on the history of general philosophy, his theory of creation out of nothing, in particular, has had a profound influence on Christian thought. One of the main issues between philosophy and theology concerned the creation of the world. The Aristotelian proofs of eternity were considered irrefutable. For this reason the Church strongly opposed the Aristotelian system and prohibited the study of Aristotelian philosophy. A different attitude was assumed by Maimonides who, while in general agreement with Aristotle, yet disproved the Aristotelian thesis regarding the eternity of the world. Naturally, therefore, the Maimonidean exposition was of particular interest to the Christian world, for it revealed to the scholastics a new method of maintaining the creation of the world on a philosophic basis. Thus, Maimonides in the thirteenth century facilitated the ascendency of Aristotle by removing the obstacle—the thesis of the eternity of the world. Thereby he contributed towards the displacement of Platonism and Neo-Platonism by Aristotelianism in the Christian philosophy of the thirteenth century. The *Guide* appeared in 1190, and early in the thirteenth century it was already known to the Christian world. William of Auvergne, the bishop of Paris, and Alexander of Hales, the English theologian who first introduced Aristotelian philosophy into Christian theology, made diligent use of Maimonides' work.

Albertus Magnus, who flourished soon after Maimonides, one of the most significant figures in the Catholic Church, incorporated in his own work complete chapters of the *Guide* of Rabbi Moyses Aegyptus, as he called Maimonides, and in general made extensive use of Maimonides' work. He thus prepared the way for his pupil Thomas Aquinas, who used Maimonides' work in the construction of one of the most important systems of Catholic thought. While Albertus Magnus was more the compiler, Thomas Aquinas was the creator of a unified complete system of Christian Theology. Accordingly Thomas Aquinas not only quotes Maimonides but has assimilated his thought into his own system.

With regard to the far-reaching influence of Maimonides on Thomas Aquinas, some scholars go so far as to claim that the *Guide* of Maimonides is the precursor of the *Suma* of Thomas Aquinas, and in questions concerning the reconciliation of revealed religion and Aristotelian philosophy Thomas Aquinas follows Maimonides as closely as the differences between Judaism and Christianity permitted.[1]

It must, however, be admitted that there are fundamental differences between Maimonides and Thomas Aquinas. For example, with regard to the problem of creation, Maimonides retains his critical attitude to the bitter end by maintaining that the creation out of nothing can no more be demonstratively proved than can the eternity of the world. His only aim was to show the acceptability to reason of the doctrine of creation out of nothing and thus to show that there is no contradiction between reason and revelation. On the other hand, Thomas Aquinas is dogmatic in his assertion that creation out of nothing can be made evident by means of demonstration.

All the same, Thomas Aquinas received from Maimonides the stimulus for the construction of his own views on creation through the latter's disproof of the Aristotelian arguments in favour of eternity.

As in the scholastic period Maimonides served chiefly as the pattern for the harmonizing of religion and Aristotelian thought, so in the Renaissance with the decline of Aristotelianism the interest in Maimonides, although naturally diminished, was not effaced. For this period his attraction lay not, as in the preceding period, in his theory of creation, but in his theory of negative attributes, in his thesis that the essence of God cannot be the object of knowledge and in his interpretation of the biblical figurative expressions.

In modern times Leibniz is the principal philosopher who thought Maimonides worthy of study. Leibniz became acquainted with Maimonides' work through the new Latin translation of the *Guide* by Johannes Buxtorf (printed at Basle in 1629). Leibniz used it, quoted from it, and professed great regard for the author. Leibniz introduces his notes[2] on the *Guide* with the following words: "The work of Rabbi Moses Maimonides called *The Guide for the Perplexed* is pre-eminent and is more philosophical than I

[1] Cf. Emile Saisset, in *Revue de Deux Mondes*, 1862.—Jacob Guttman, *Das Verhältniss des Thomas von Aquino zum Judentum und zur jüdischen Litteratur*, Göttingen, 1891.—Jacob Guttmann, *Der Einfluss der Maimonideschen Philosophie auf das christliche Abendland, in Moses ben Maimon, Gesellschaft zur Förderung der Wissenschaft des Judentums*, Leipzig, 1908.

[2] Published by a French scholar, Foucher de Careil; Leibniz, *La Philosophie juive et la caballe*, Paris, 1861.

expected; it merits close attention. He was a man of unusual intellectual power, in philosophy, mathematics, medicine, and finally in biblical exegesis."[1] Moreover the system of Leibniz bears affinity in several important respects to that of Maimonides.

Attempts have been made to trace spiritual relationship between the philosophy of Spinoza and that of Maimonides. While some aspects of Spinoza's system can be best understood on the background of the *Guide*, yet the contrast between these two thinkers is so fundamental that any effort to bring them close together must necessarily entail a violation of the principles of one or the other.

In their conception of God as well as that of the world they differ fundamentally. While Maimonides presents an ethical Monotheism, Spinoza develops a natural Pantheism. Maimonides' theory of negative attributes leads to the ethical concept of God; Spinoza's theory that the world consists of two positive attributes of God—*res extensa* and *res cogitans*—and that the world as a whole is a manifestation of the Divine substance leads consistently to the annihilation of ethics. According to Spinoza the world exists necessarily as a constituent part of God, while according to Maimonides the existence of the world only follows as a product of a free creative act of God. According to Spinoza the validity of the principle of causality is absolute and all-embracing; everything that exists, does so of necessity. There is no freedom of human will which is the essential presupposition of ethics. In a world-order like this man as a part of nature is subject to the same laws which govern the rest of nature. He has no specific place in the cosmos. On the other hand, Maimonides, by his conception of God as a free creator and as a moral symbol to man, has assigned to man a pre-eminent place in the cosmos, and by recognizing him as a free creative personality has invested him with a significance which distinguishes him from all other forms of existence.

It seems that of all modern philosophers Leibniz is most akin to Maimonides. Leibniz as well as Maimonides represent the doctrine that the world being the creation of God must be in its essence absolutely good. This idea is based upon the conception, common to both, of God as a perfectly free creative spirit. Leibniz, like Maimonides, conceived of God as an active, dynamic, absolutely free creator in contradistinction to Spinoza, whose conception of God is that of an absolutely static substance. The spiritual affinity of Maimonides and Leibniz can best be traced by comparing Maimon-

[1] Egregium video esse librum rabbi Mosis Maimonidis qui inscribitur Doctor perplexorum, et magis philosophicum quam putaram, dignum adeo lectione attenta; fuit im philosophia, mathematicis, medica arte, denique sacrae scripturae intelligentia insignis.

ides' arguments against the Mutakallimun on the question of the existence of natural law and the arguments advanced by Leibniz against "Occasionalism" represented by Malebranche and others.

According to the Mutakallimun the world consists of atoms, for the maintenance of which as well as for their coherence continuous re-creation by God is required. There are no natural laws. They conceive of the creative act of God as a continuous one which extends to the minutest details, coming directly from God. They thus present an "Occasionalism" which excludes the existence of natural law. The same "Occasionalism" is manifest in their conception of substance and accident. Substance and atom are identical. The accidents require a continuous re-creation without which no accident could exist for two consecutive moments. As they deny the existence of natural law they conceive of causality not as a law in itself but merely as an habitual sequence. This doctrine of causality as a psychological phenomenon was adopted later by the Arabic philosopher Al-Ghazzali, who made it the central point in his system and thus anticipated David Hume's scepticism.

It seems that the basis of the "Occasionalism" of the Mutakallimun is to be found in their concept of God as an all-perfect being, in which preference is given to the attribute of omnipotence over that of omniscience. The idea of God as omnipotent involves the supposition that all being and existence are immediately derived from the divine will. Since natural law would limit divine omnipotence the Mutakallimun deny its existence. All existence must therefore be due to a continuous divine creation.

Maimonides rejected the doctrine of the Mutakallimun and maintained the existence of natural law. In the world all phenomena are governed by law established by creation. Maimonides' view of nature being subject to natural law and logic originates in his conception of God as the infinitely perfect being because of His omniscience rather than because of His omnipotence. An ordered cosmos in which law prevails as a manifestation of divine wisdom is more compatible with the idea of divine perfection than a lawless universe in which all phenomena are due to an immediate act of creation as a manifestation of divine omnipotence. Thus the existence of natural law follows from the superior emphasis given to omniscience among the divine attributes.

Parallel with Maimonides' arguments against the Mutakallimun are the arguments advanced by Leibniz against "Occasionalism" of his time as represented by Malebranche and others.

At the centre of philosophic interest since Descartes stands the problem of mutual interaction and influence on each other of the two absolutely different substances, body and soul. How can two entirely different substances like body, the essence of which is

extension, and soul, the essence of which is thinking, influence and stimulate each other? The attempt to find a solution to this problem was the determining factor in the development of philosophic thought subsequent to Descartes. In the different answers to this question consists the essence of the philosophic systems of Malebranche, Spinoza, and Leibniz.

According to the doctrine of "Occasionalism" the stimulation of the body is only the occasion on which there comes about some modification of the soul, and vice versa. It is only God who finally produces the modification in one substance on the occasion of the stimulation given by another. Thus, the unity of the world is guaranteed by the idea of God, so to say, as a permanent controller connecting the two totally distinct substances, and their influence on each other is due to an immediate act of God.

Leibniz expresses the occasionalists' idea of God by means of a simile, comparing God with a supervisor having constantly to adjust two watches to keep them in time with one another. He has constantly to produce the harmony which they are unable to bring about unaided. In like manner, it is the function of God to cause the two totally different substances to correspond with one another. The occasionalists thus give preference to God's attribute of omnipotence. By His constant intrusion into the process of nature, in order to produce the harmony of the two distinct substances, the unity of the world is brought about. Thus the unity of the world is guaranteed by the omnipotence of God.

In contradistinction to this is Leibniz's theory of pre-established harmony, which has as its basis the idea of God as all-wise. His doctrine is that at the Creation a harmony was established which ensured the correspondence of the two substances with one another. They can be compared, to follow up Leibniz's simile, with two perfectly synchronized watches. At the creation of the world, by the wisdom of God, unity was established; and thus, at the creation of the two substances, their harmonious correspondence with one another was provided for. Leibniz considered that this natural harmony of the two substances was more compatible with the idea of God's perfection, than the occasionalists' theory of a supervisor making constant adjustments. Thus in Leibniz's theory of a pre-established harmony, the emphasis is laid on the attribute of omniscience, and this corresponds with Maimonides' view, while the conception of the occasionalists corresponds to that of the Mutakallimun.

It is obvious that within the limits of one lecture it is possible only to call attention to a few points which indicate the systematic place of Maimonides in the history of philosophy and his influence thereon. They may nevertheless suffice to show that the philosophical

work of Maimonides, even considered as a product of the culture of his time in the light of which it is to be read and understood, has exerted an influence far beyond his own day; and that his trend of thought shows surprising affinity to modern philosophic ideas. The conviction grows increasingly clear that the realm of spirit stands above nations and races. Great spirits, even though they are closely connected with the general culture of their time and are bound up with the nation of their origin, yet belong to the whole of mankind. Such a one was Maimonides.

SOVEREIGNTY AND THE STATE[1]

R. E. STEDMAN, M.A., PH.D.

THE question of political sovereignty must at all times be of acute academic interest, since it is practically impossible to say anything about the state without implying something about sovereignty, or vice versa. Political *theory* has very generally found this conception central to its inquiry; but in recent years the notion has been thrown into sharp relief by political *events*. In Fascism and Nazism the doctrine of state sovereignty is "made flesh" in startlingly substantial forms. These modern incarnations of *Leviathan*, and their threat to much which has come to be deeply valued, give unprecedented importance to an age-long discussion. Political theory is not to-day, if it has ever seemed, a simply academic issue, or an "arm-chair" branch of philosophy. Not all of those who carry through revolutions, who build barricades and defend them with their lives, have a clear philosophical theory of the state; but powerful beliefs and motives they certainly have; and it daily becomes more manifest that unless the world is content to allow its political future to be determined more and more by obscure visceral impulses or crude economic motives a more intense effort to achieve and to apply true beliefs in the political field is imperative.

My purpose in this paper is a modest one. I do not propose either to refute again or to rehabilitate the old sovereignty theories of a Hobbian or an Austinian sort. The former is too easy, and the latter I deem impossible. But the vitality, in one shape or another, of these views argues that they must at least adumbrate some political truths if not those which they explicitly affirm. I wish, therefore, to consider as sympathetically as possible a notion which it is now fashionable either to adopt or reject without criticism. There is a manifest need to ask: On the supposition that the state is not sovereign, what—apart from interested motives—suggests to serious thinkers that it is? And on the same supposition, what is the general ground of obligation to obey the law, and the particular ground of the obligation to disobey it? As a preliminary I shall tentatively define sovereignty, and suggest some evidence for the conclusion that the state is not sovereign. Such evidence (which

[1] Delivered as a public lecture in February 1935. I should like to refer to Professor Ernest Barker's admirable article in the October *Hibbert Journal*, in which he most persuasively argues for the position I desire chiefly to enforce.

I do not give as exhaustive) is required to substantiate the standing supposition of this argument.

The state I take to be society formally organized for the purpose of order by means of law. Societies in which order is otherwise secured—for example by custom, taboo, or similar means—are not, according to this definition, states. Such a definition is to some extent arbitrary, but it accords with wide usage and seems to me to escape most of the possible objections. The doctrine of state sovereignty affirms that it is an unconditional obligation upon every member of the state to obey the law. Sovereignty, therefore, is not mere power. An individual or group may enjoy power, more or less, but on this view the only power which can be exercised as a *right* is that which the state wields directly through the instruments of law enforcement or indirectly by delegation or specific commission. This view is immortalized by Hobbes in the *Leviathan*. But something very close to it was movingly expressed by the condemned Socrates of the *Crito*.

"If we mean to kill you," the Laws of Athens are made by Socrates to say to Crito who is beseeching him to escape with him from prison and death, "because we think it just, must you do your best to kill us in your turn? Can you claim that you have a right to this, you, the lover of virtue? Is this your wisdom, not to know that above father and mother and forefathers stands our country, dearer and holier than they, more sacred, and held in honour by God and men of understanding? That you ought to reverence her, and submit to her and work for her when she is in need . . . and either win her consent or obey her will, suffer what she bids you suffer, and hold your peace . . .?"

The principal difference between this view and that of Hobbes is that for Socrates the ethical obligation is prior to (or is more fundamental than) the claim of the state to obedience, while for Hobbes moral notions have no significance whatever except within the state. Thus when Hobbes speaks of "natural rights" as existing before the foundation of the Commonwealth, what he really means is that such and such things a man will do or demand in so far as he has the power. The "right to life," e.g., can mean for him simply the fact that, so far as he is able, a man will defend himself. This is a psychological fact, not a moral right. I cannot here argue that the position of Socrates is the sounder, but I have no doubt that this is so, and for the sake of the present discussion I must be content to assume it. The position for Socrates is that a man must always do his duty, and that it is always his duty to obey the law. In all political situations, therefore, the state is sovereign.

Professor Bosanquet sees sovereignty in a similar light. "The state," he argues, "as the operative criticism of all institutions is

necessarily force, and in the last resort it is the only recognized and *justifiable force*" (my italics). It is not power, but the *sole right* to power, which characterizes the state.[1]

The question whether or not the state is sovereign in the sense of wielding supreme power by right clearly concerns us very closely. In fact it has been generally answered in the negative of late by English political philosophers. But on the Continent scholars have adhered, in general, to the sovereignty theory; and political activity has widely been based upon it. For these reasons alone it seems to me mistaken both as tactics and as theory to treat the issue as certainly decided against the state. Mr. G. D. H. Cole brushes the whole discussion aside. Not only does the claim of the state to sovereignty obviously fail, but, he affirms, no body can anywhere be discerned which really pretends to sovereignty in the sense suggested. But events have revealed the error of this judgment. Indeed, it may be said with some assurance that the *claim to sovereignty* is a mark of all states, howsoever they differ in other respects. We may sympathize with Mr. Cole's dislike of these pretensions (if they are pretensions), but their presence is surely not in doubt. One of Mr. Cole's chief premises for the conclusion that the state does not exist is the diversity of so-called states. But star-fish vary without ceasing to be star-fish. And whether or no we agree with Otto Gierke that "The attribute of sovereignty is the state's peculiar and specific criterion," it appears to me merely a matter of observation that the *claim* to sovereignty is a mark common to all diversities of state forms.

Perhaps one of the most damaging arguments against the right of the state to supreme power is the simple denial that the state ever has wielded supreme power. In this event it would be hardy to assert the existence of a right which never has had and—so far as can be anticipated—never will have, a factual basis. The claim to the right of power presupposes the existence of power. But this presupposition, it may be argued, is void. One defence against this argument would be to insist that a right can be a right where its factual expression is utterly impracticable, but few would venture on this dubious ground. The alternative and more plausible objection would be to deny that no state has ever enjoyed supreme power. When we look at states "close up" the contrary appearance may meet us, but if we look farther perhaps we shall fare better. Rome, for example, appears to present a face of unbroken power. In fact, however, the situation was not so simple. The exercise of supreme

[1] In fairness to Bosanquet it should be added that the state, for him, exercises, or is the organ of, a sovereignty which attaches not to the state as such but to "the whole fabric of institutions." This distinction need not concern us here, but in a full discussion it would deserve attention.

power must be taken in time as well as in extent, and the formal instruments of Roman rule cannot be found by the historian to wield unchallenged power for any length of time. The real picture, surely, is not one of law and power permanently, or even steadily, coincident, but rather of an unceasing warfare of groups and persons for the exercise and spoils of government. In modern times it becomes more and more evident that state power is limited in many informal ways, and to a very large degree, by an indefinite number of forces strictly irrelevant to the legal political sovereign. Suffragettes, passive resisters, Trade Unions, Chambers of Commerce, powerful individuals and groups, all lend their ounces or pounds to the force by which actual rule is effected and modified.

Considerations such as these have led Mr. Cole and others to turn right away from the notion of sovereignty, and even of the state, as a clue to political life, and to seek for light in voluntary association and in community in general. This shift of emphasis has undoubtedly been of value, but its danger appears to me to lie in its tendency to underestimate the peculiarity of the state, even where it does not run to the extreme of denying its existence. The state does, to my mind, enjoy a peculiar position and authority which cannot be explained away. Attempts to do so generally express the voluntarist and syndicalist preferences of their authors rather than the realities of the political situation. In fact the state is not all powerful, but its exercise of force is unparalleled, and impressive to an extent which suggests a difference not of degree, but of kind between the state and the voluntary associations. It is, by the way, a misnomer to describe the state as a voluntary association, since I cannot choose to belong or not to belong to *some* state, though I may in some cases renounce a particular citizenship. It is of greater moment, however, to note that the exercise of power by all agents other than the state seems to differ in important regards from that of the state itself. Thus after a successful revolution the voluntary association which carried it through hastens to equip itself with the armour of *law*, or to put its action on the footing of state action.

It remains, then, to adumbrate a view according to which the state is not sovereign but which sufficiently accounts for its claim to sovereignty, justifies its unparalleled (but not supreme) power, and, while showing the ground of the general obligation to obey the law, leaves a loophole for the particular obligation to disobey it. This is the theme of a book, not of an article, but a few suggestions may here be made.

The significance of the claim to sovereignty, it seems to me, lies in its emphatic assertion of the ethical basis of the state. It is here that the state claims *right*, and right is either *moral right* or it is

nothing at all. The state does not simply say to a man: "You must obey the law!" It affirms that he *ought* to obey it. The exercise of mere power by the Eastern type of despot did not (so far as it was mere power without any vestige of even qualified consent) imply any claim to sovereignty over the subject peoples above which it spread its devouring power. The nexus maintained was without benefit of any moral sanction whatsoever. But within the limits of the parent communities of these empires such a claim was generally made and upheld by virtue of the priestly status of the king or the kingly status of the priest. The cohesion of such communities, which becomes the germ of empires themselves void of ethical import, is not the product of power alone, but of power sanctioned by divine authority. Here the moral sanction is not discriminated from the religious, but in principle the distinction is discernible between might and sovereignty, power and the right of power.

But if the state claims right, its claim must be subject to the general conditions of right. Unfortunately, no subject in the whole of philosophy is more controversial than this. For my part I am unable to accept merely formal theories of rightness—which, with Kant, trace the right to a wholly inward state of mind—and I must here simply assert what really calls for argument, namely that the right can only be understood in conjunction with the good, and that the right of the state to power belongs to it as it is an instrument of good. The extremely "high" view of the state held by Socrates and Plato is thus to be accounted for by their conviction that the state was the primary condition of the good life for man. All the extremes of Plato's *Republic* and *Laws* flow from his high estimate of the ethical functions to be carried out by the state. It is no doubt very largely to this ideal city, and only in part to the actual beloved Athens, that Socrates acknowledges absolute allegiance in the *Crito*. If the state were sovereign it would be in its moral function that we should see the foundation of its sovereignty. And in so far as a state enjoys the right of unparalleled power it does so for the same reason.

Under modern circumstances, at any rate, it is more than doubtful whether any actual state could claim to be the primary positive condition of the good life of its members. But it might more modestly and more justly be claimed for the state that it is a primary negative condition of the good life in that such a life could not be worked out except within a field of public order established by law. Thus it has this claim to general obedience, namely that its purpose of law and order is the *sine qua non* of the specifically human life. The claim to sovereignty, where it is not a mere device of despotism, enjoys whatever force it possesses because of the extremity of the need of man for public order, without which his

life would indeed be "solitary, poore, nasty, brutish, and short." We can readily understand, therefore, why it is in times of unusual political disorder that the most extreme sovereignty theories are promulgated. Thus the *Leviathan* was being prepared at the very moment that the actual sovereign was being overthrown.

Some writers, notably Professor Laski, are closer to Plato in expecting that actual state activity should directly or positively foster the full realization and development of its members. I take the somewhat lower line of insisting upon its instrumental function as the preserver of that order without which such realization could not be hoped for. But in essence these positions are similar, since they alike see the justification of the state in its moral character.

The matter may be put thus: The state is society organized for the maintenance of peace and order, and hence it has an indisputable right to such power as is necessary in the changing situation to guarantee its purpose. How much power this is cannot be decided in general terms. But I think it is a safe generalization that the better the state—i.e. the better it effects its purpose at large—the less this feature of power will obtrude. As Professor MacIver excellently puts it, "Force holds nothing together." It is the antithesis, not the essence (as Bosanquet holds) of law. Indeed, the ability of the state to use force to secure its proper purpose constantly puts this purpose in peril. The course of history is strewn with the wrecks of communities which have collapsed from excess of internal force.

Since, then, as soon as the state's claim to the possession and right of supreme power is sharply tested it is seen to be without substance, is it not odd that all states do in fact continue to make this insupportable claim? Not, I judge, altogether. It is not accidental that in time of crisis, when the claim is in fact most precarious, it is most vigorously maintained. As the crisis continues a revolution may overthrow the state at the very moment that it is solemnly declaring its sovereignty. What, it may be asked, is the sense of this? Perhaps we may see in this claim an oblique mode of insisting that it is of the essence of government (which, of course, is the state in action) to be continuous. If public order is to be secured government must go on. In the narrow sense "governments" come and go with the regularity of the seasons, but the function of government is actually continuous in spite of the succession of ministries. And since government must be continuous if its purpose is to be effected, it stands to reason that the state must challenge the *right* of any individual or group to interrupt the activity of government. So long as a government exists it must act *as if it were supreme, as if there were no rightful power but its own.* In Great Britain this gesture is kept up by the fiction of the

sovereignty of the King in Parliament. In China we find a weak government strenuously claiming the sovereignty it does not possess in order to extend the field of public peace and order. In the U.S.A. we have the highly instructive observation of the President (as quoted in the English press and wireless news) that—in effect—if the Constitution can carry his monetary policy well and good, but if it cannot it is not the policy which will be changed. This is inevitable, for crisis brings out the essentials of political life. Thus what may be described as the *provisional or pragmatic sovereignty* of the state arises. This pragmatic sovereignty has its moral basis in the extreme need of man for peace and public order. This need is so extreme that only something very good indeed can be the basis of a right to disobey the law.

But the ethical basis and character of the state has implications which are destructive of the claim to absolute and unqualified sovereignty. Peace and order are essential to human life, but they are *instrumental goods* only. Hence the right of the state to pre-eminence among associations and to unparalleled power is a conditional right. And the ends to which security and order are means are of such a nature that they cannot be *gleichgeschaltet*. Hence the state can claim a right to maintain peace and order only in such a manner as to permit the free pursuit of culture—of science, art, religion. These efflorescences of the human spirit are not derived from the state, but the state can destroy them. Any exercise of power which endangers them is not sovereignty but tyranny.

Finally, in appealing to *duty* (which is the obverse of right, the right of the state being a claim upon the duty of its members), the state is invoking an authority which, in the last resort, must be fatal to sovereignty theories. A man's duty is what his conscience imposes. Hence, when a dutiful citizen obeys the King's law, the sovereign he is acknowledging resides in his own breast. In claiming sovereignty the state has appealed to conscience and not (as Hobbes claims) merely to fear and the desire for order. But conscience is sovereign in its own sphere. Therefore the provisional or pragmatic sovereignty of the state is cut across by any issue which awakens clear conscientious objection to obedience. Thus we cannot go as far as Socrates, who admits the propriety of persuasion of the state, but where this fails will not allow disobedience on any grounds whatsoever. But that conscience does in fact lead to disobedience is, of course, too obvious to need emphasis. All sovereign states know it to their discomfort. The conclusion I wish to emphasize is this, that the particular obligation to disobey the state is implicit in the claim of the state to right as well as power, and in the general obligation to obey the law. To claim for governments the right to

override conscience in the name of sovereignty comes to a contradiction in terms, and these the terms most vital of all to man. Hence it is not surprising that governments which claim the sovereign right to set at nought the consciences of their people come inevitably to rely upon the only remaining instruments of obedience, namely, force, torture, and terror.

DISCUSSION

SCIENCE AND THE EXPLANATION OF PHENOMENA

HELEN WODEHOUSE, M.A., PH.D.

DESCRIBING and explaining; tracing the outlines and smoothing out the folds; making clear and making plain; in either case hoping that our hearer may be able to say, "Yes, I see it better now." Is there really a fundamental difference between these two? Common parlance uses both words for the same kind of process. We may be asked either to "explain" or to "describe" the working of a machine, answering the English boy's question "Why does it do this?" or the Scotch "What's the go of it?" To account for a sum of money is to explain its absence by describing its expenditure. We say, "Why is that man offended?" or, equally, "What's the matter?" and a brief description of the man's character and history, showing on what structure a casual remark has impinged, may lead us to say, "That explains it." Even where purpose enters we may vary the words we use. "Why on earth did you do that?" "What was your idea in doing that?" "Describe what you had in your mind." "Please explain."

"The function of science," writes Professor W. T. Stace,[1] "is to answer the question 'what?' but never the question 'why?' In other words, its function is simply to *describe* phenomena, never to *explain* them." I desire to urge that common speech does not make, and that philosophy should not make, any such gulf between the two processes as would justify this ruling. To explain a phenomenon D is sometimes to describe ABCD; sometimes, where purpose enters, it is to describe ABCDE; sometimes to spread out D into its details $D_iD_{ii}D_{iii}$; often to do all these together. It is to show D in its full character, and in its background and setting, and with its background showing through the details and interworking with them (our symbols are inadequate for this). We are to see D's structure and function and possibilities, and the world's bearing upon them and their bearing on the world. The contour of a face is partly explained when we have learnt to see the bones beneath the skin and to notice how a habitual expression has moulded what lies over the bones; and we should understand the face better still if we knew all the man's history and heredity on the one hand, and all that physiology and psychology and the sciences of nutrition and education can tell us on the other. A perfect description of England and India, in their present and their past, might do much to explain each to the other. A complete or perfect explanation or description has presumably never been given of anything in the world.

One word, no doubt, is used more widely than the other. We sometimes complain, "This is a description but not an explanation"; meaning either that it does not go beyond what was given, or that the new information is not relevant. To the statement "You are very late," the answer "I hurried all the way" is descriptive but not explanatory; whereas "I met the Man with the Green Hat," if the title is that of a notorious button-holer, is explanatory as well as descriptive. An ultra-Humian might maintain that in

[1] *Philosophy*, October 1935, p. 410.

the realm of science nothing is more relevant than anything else; that we can only hope for observed sequences; not for sequences that are more or less intelligible. We shall not claim that perfect intelligibility, which means complete and perfect knowledge, is achieved anywhere. But it does seem reasonable, we usually think, in psychology that a bad shock should tend to be followed by haunting fears, and in meteorology that floods should follow not after drought but after excessive rain. "The people living in those red-painted houses are always suffering from malaria." "The man looked at me and dropped dead." If we are told that it is no business of medical science to explain, we may surely ask, at any rate, for a fuller and more relevant description.

I do not think that Professor Stace does take the ultra-Humian position.[1] Nor do I think that he really means to take another conceivable position; that no account would be worthy of the name of explanation unless it connected the given phenomena with some thing-in-itself that can never appear and therefore can never be described. I have not been able fully to understand what criterion of explanation the article does arrive at; for pp. 413*g*–414*a* (on the desire to feel at home) seems to suggest a motive rather than to supply a criterion. To say that Professor Stace does not make his own criterion clear would be to put the matter unfairly, for he pictures the explanation-asking public as putting pressure on the scientist to give them something other than description, and speculates as to what it can be that they are really wanting. I suggest that all they want, in most cases, is to be helped to see the "go" of things more fully and clearly, and to understand better how one bit of the world fits in with the rest. Sometimes the questioner would naïvely like to find some particular answer; he would like to find, for instance, as part of the account, that the puzzling phenomenon served a purpose, or that something which looked inimical to what he cared for was really not so. But most requests for explanation are surely not thus tied down; and they have many motives.

The final "Note on the Concept of Explanation" seems to bear only upon one particular problem—the attempt to give an explanation of the universe taken as a whole. The earlier section, pp. 416–23, directed against certain mathematical physicists whom the author believes to be misled by feeling bound to seek an explanation, would seem to be equally well stated if he merely urged (as he does) that the account they give (whether called explanation or description) is incorrect. I venture to suggest, however, that the contents of these two sections do show the motive of the article; that Professor Stace is giving battle to certain particular answers to particular problems; and that to this extent these pages "explain" what precedes them. For I cannot think he means seriously and universally the suggestion made on p. 423*d*, that, whether in science or philosophy, "the whole idea of explanation is illusory, wherever it is found." Indeed he does not say so.

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[1] He seems, for instance, not to rule out the intensified intelligible connection which we call necessity, and its complement which is impossibility. Near the bottom of p. 420 he speaks of a formula describing "every possible path of every possible gravitating body."

PHILOSOPHICAL SURVEY

PHILOSOPHY IN FRANCE

SOME RECENT CONTRIBUTIONS ON THE FORMATION OF GREEK THOUGHT

History and Legend are, Professor Robin believes,[1] traditionally misconceived in being conceived as in conflict. To write history is either to destroy utterly the claim of some legend to be veridical, or else to rediscover, behind what is imaginary or fabulous in it, indications of what the facts really were. Such is the accredited view. But, asks M. Robin, is not legend, on the contrary, a positive element in history? And he answers in effect that nowhere is legend more regular, indeed more necessary, than in its contribution to the history of philosophy, ancient and modern. This history has a wholly original character. It does not resemble the history of the sciences; for this relates either the checkmates in research—instructive to be sure, but dead for future science—or else its victories—equally instructive, though only their results survive. Nor does it resemble literary history; for even if this be accompanied by evaluatory criticism, seldom is interpretation of doctrine admitted. Interpreting a philosophy is seizing not only its literal sense, but above all its import and efficacy. It is a continuously creative and reflective activity which unceasingly quickens the materials on which it reflects. But since what is called objectivity cannot be attained by the historian of philosophy except by shutting his eyes to the limits of his powers, he must candidly confess—and without admitting that the confession impairs the value of his effort—that objectivity cannot be his chief end. No great philosophy can really be considered dead, its sincere and sympathetic evocation is always possible. The history of philosophy *is* philosophy; it is philosophy philosophizing on its past efforts, and contemplating itself in the perenniality of its changing existence.

What philosophy and its history can become when pursued from such an outlook and by one of M. Robin's consummate skill, his work at the Sorbonne, his European reputation as a 'maître' in Platonic studies, and his last two volumes,[2] testify magnificently. In the recent second edition of *La Theorie Platonicienne de l'Amour*, and perhaps even more in the most brilliant introduction to his edition of Plato's *Phaedrus*—which far surpasses all discussions of this dialogue known to me—we have an impressive example of that "creative and reflective activity which unceasingly quickens the material upon which it reflects," of which M. Robin spoke in his article. The 185 pages of this "notice," as it is modestly called, form a remarkable essay in interpretation, in which the details of the argument are reviewed, their significance and contexts clarified and made to contribute to the theme of the unity and

[1] L. Robin, "L'histoire et la légende de la philosophie," *Revue philosophique*, 60e année, Nos. 9 and 10, 1935. Pp. 161–175.

[2] Leon Robin, *La Theorie Platonicienne de l'Amour*, nouvelle édition. Paris: Alcan, 1933. 30 Fr. Pp. 229.

Platon; Œuvres complètes. Tome IV. 3e partie—Phédre. Texte établi et traduit par L. Robin, Collection des Universités de France. Paris: Socété d'Edition "Les Belles Lettres," 1933. Pp. clxxxv + 96. 30 Fr.

structure of the dialogue. What that structure is, and what is the "immediate object" of the *Phaedrus* ("thorny" questions in this case) are lucidly and fully discussed. To summarize without mutilating the exquisite pages on Plato's view of the soul and its destiny, and those on love and its relation to philosophy, is impossible. Suffice it to place on record that these, and the pages on Dialectic (particularly "descent by division"), and on the myth and its *raison d'être* (pp. 108–160) are of a quality that the experienced Platonist may well envy, but rarely match. All who would know Plato *intime* must read, re-read, and ponder M. Robin's introduction.

M. Schuhl, who worked under M. Robin's direction, has prepared a work on the formation of Greek Thought[1] that is worthy of that privilege. The special merit of the book is hardly to be gathered from its title, which may too readily suggest a series of monographs on Thales and his successors down to Plato. M. Schuhl's book is not of this kind: it is not monographic, and it contains no exposition of Plato. A history of thought rather than of thinkers, it attempts to run down to their origins two protracted tendencies, mystical and scientific, which, unreconciled in Plato, have interacted now in opposition, now co-operatively, in producing the philosophical, scientific, and technological accomplishments of his predecessors. Starting from the contrast in spirit between the Apolline and the Dionysiac cults first made fundamental by Nietzsche, M. Schuhl records the steps by which the Greek mind detached itself from "the sombre and opaque sadness" surrounding magical and religious rites and beliefs in pre-Hellenic times down to the days of the sophists. To find the spiritual problems of earlier thinkers reinstated in their religious and ritualistic settings is suggestive, but to see how vivid and intelligible those settings become when interpreted in the light of the last thirty years' discoveries in Grecian and Oriental archaeology and ethnology (e.g. Evans, Woolley) is something very novel in a book of philosophical history. The conventional picture of the experience of the Greeks (e.g. as drawn by Schiller, Ruskin)—one of unbroken harmony and serenity—rests on a misrepresentation of fact, and M. Schuhl presents evidence in Book I to show that even among festivals of a joyful character the Dionysiac element is the superficial one, and that a current of consternation and dread runs beneath. How "sous le ciel le plus pur on sentait parfois planer d'obscures puissances" is well indicated in four chapters on Belief and Ritual, in which the author examines the significance of pollutions, contagious and otherwise, purifications, imprecations, divination, meteorological and agrarian magic. In Book II we witness the chief stages in the evolution of religion down to Homer, and an attempt is made to determine what part was contributed by the oldest Grecian inhabitants, what part by the Cretans, and what by Achaean invaders. Thus some 150 copiously documented pages (two-fifths of the book) are devoted to the formative influences at work before the Milesian cosmologists (with whom traditional histories begin) make their appearance. This transition is marked in Book III, where philosophical and scientific beginnings in Ionia are contrasted with a mystical reaction centred in the Eleusinian mysteries, the cult of Dionysus, Orphism, and Pythagoreanism. Here the primitive dualism breaks through again. We witness on the one hand a predominantly positivistic effort elaborating an inductive science, and a powerful current of mysticism on the other. Ancient cults which the Olympic religion had ejected revive, permeate strongly the popular classes, and survive in some measure among the Ionians. But the positive spirit is as far from any

[1] P. M. Schuhl, *Essai sur la Formation de la Pensée grecque: Introduction historique à une étude de la philosophe platonicienne.* Paris: Alcan, 1934. Pp. 466. 50 Fr.

empiricism in their cosmologies as it is near to empiricism in their technological inventions. For in the recurrent tendency of their cosmology to exhibit "the one" behind multiplicity they are but transposing earlier theogonies. But M. Schuhl denies that their Physis is "mere matter opposed to spirit": he will not go so far as some historians (e.g. Joël), who see "an intrusion of the divine in nature." Physis is "that which shoots forth and grows"—"living generation"; Thales's water is not merely the marine element, but "la semence liquide."

The two currents, positive and mystical, which we saw associated in Pythagoreanism, now reappear in complete opposition. There is a 'shift' in the earlier dualism; the antithesis which the work of Xenophanes, Heraclitus, Parmenides, and Empedocles displays is no longer one between a positive, inductive science and a monistic metaphysics. It is metaphysics, not science, that now becomes the accredited representative of the positive spirit, and an undercurrent of Orphic mysticism becomes its antithetical term. Thus the main problem now arising is so to harmonize and unify both that neither is sacrificed. Here M. Schuhl seems to encounter some difficulty to 'fit' that which is genuinely metaphysical in effort and attainment into the antithesis 'positive-mystical' in terms of which he has so far made his way. For this metaphysical element is not itself something mystical, though at times its inspiration may have been so. Nor is it an obvious efflorescence of that positive tendency whose fruits are undoubtedly seen in various fragments of inductive science—physical, meteorological, and medical—or in the technological inventions.

In his last book, M. Schuhl emphasizes the rise of a new spirit in the Athens of Pericles. A general problem of reconciling logic with reality is that which the work of Parmenides set for the 'advanced' minds of the time. Leukippos seeks to solve it by partitioning Parmenidean Being into atoms; Empedocles by instituting a repugnance between the four elements. But Anaxagoras was the first "to envisage undismayed that infinity of regression (the impossibility of reaching indivisible elements) which became a logical scandal and an absurdity for the ancients." Here philosophy reaches a temporary deadlock. If on the one hand neither generation *ex nihilo* nor total transformation can be allowed, and if on the other contraries are observed to engender each other, then our choice is limited to two alternatives. Either, like Melissus, we must follow Parmenides in renouncing all hope of reconciliation, or else maintain that the contraries pre-exist one in another—everything possessing besides its dominant and apparent characters, an infinite number of invisible qualities "en germe," on the analogy of those ritualistic mixtures of all kinds of seed used in certain festivals. Everything being thus given *ab origine*, Anaxagoras could echo Parmenides, saying that "the All" can neither augment nor decrease. So, although the Panspermia of Anaxagoras is, in being sensibly characterized, further removed from Eleaticism than the atomism of Leucippus, that atomism, in retaining the Void, is further from Eleaticism than Anaxagoras's Panspermia, which rejects it. The richness of these last chapters can be indicated only summarily. In the middle of the fifth century we behold a fermentation of ideas on most matters of human interest. It is an era of 'beginnings' and 'developments' that leave a lasting impress on later culture: developments in astronomy, plane geometry, the fine arts, and political theory; we witness, too, the supersedure of the old by a new medicine, the creation of solid geometry, an advance in mechanical invention, and the first inquiries made into the origin of religions. At the end of the century a violent reaction breaks out against the new ideas and new pursuits. "The misfortunes and ordeals of the war were favourable to that brutal realism

which was gathering in the meantime, but they also restored to the people a sense of mystic disquietude." Despite their rigorous proscription, the divinities of Thrace, Phrygia, and Syria penetrate to Athens, and many episodes testify that the fear of occult powers (investigated in Book I) is not yet dead.

M. Schuhl's work is a veritable introduction to Plato's thought, in a new and literal sense. He selects and connects most judiciously; he disengages many of the ideas Plato was to synthesize, and the character of the influences, rational and mystical, operative on him. The moment of Plato's magnificent synthesis is, however, short-lived. The time approaches when the disciplines he succeeded in associating are to be put asunder by Aristotle and others. "Science no doubt continues its brilliant development through the oncoming centuries, but Greece knew no other mind capable of uniting, as Plato had, the most rigorous science with a mystical enthusiasm tempered by imagination, and we may well ask whether the exhaustion that followed on the Alexandrian golden age of mathematics is not essentially due to the absence of a truly 'synoptic' mind."

In his slighter volume[1] on Plato and the Art of his time the same empirical method is followed. He tries to determine as closely as may be what Plato's 'reactionary attitude' in matters of art and taste really amount to, and to interpret the recurrent quarrel between 'ancients and moderns' as it was then manifested. The scene of artistic theory and practice early in the fourth century was one of crisis and transition. Plato's position in the issue is commonly known—mistrustful of change, he was a protagonist of the hieratic art, setting his face against the innovations of his contemporaries. But what is less commonly understood is the reasons for this reactionary attitude, and in elucidating them M. Schuhl renders a real service. He builds up from textual supports a concrete and fairly definite view of the character of the innovations Plato beheld, and shows effectively from this why Plato should have been mistrustful of change in artistic outlook and aim, and why he condemns the newer attainments with some severity. More than a threatened disturbance of preferences and habituations is at issue. The proposal that Plato allowed his ethical and political fervour to prejudice his aesthetic opinion, too often permitting intellect to usurp the place of disinterested appreciation, can be settled only after confrontation with information such as M. Schuhl furnishes. When Plato refers to sculptors and painters, it is not those abstract entities "the" painters that he has in mind, but to certain definite men of his time, of whose names and works M. Schuhl often informs us. Nor does Plato condemn 'modern art' wholesale, though only a few, and quite special forms of it, escape censure. Probably the issue is at bottom a moral one; transposed into the domain of art, we meet again that conservatism in politics "qui craint toujours la décadence." His general aversion is, however, grounded in the character of the works as well, for they virtually illustrate and confirm the Heraclitean relativity of a Protagoras. They are "tours de force" in the creation of "spells"; the reference is wholly to appearance, and the technique is an art of creating illusions. "There is an exact parallel between the technique of the painter who succeeds in giving from afar the illusion of reality, and that of the sophist who "can impose on the young, who are still far removed from the reality of things, by words that cheat the ear." In the former case the spectator, in the latter the auditor, is dominated by a skill and action equally irrational. From this newer influ-

[1] P. M. Schuhl, *Platon et l'Art de son temps* (*Arts plastiques*). Paris: Alcan, 1933. Pp. 123. 20 Fr.

ence Plato turns to a moral and mathematical idealism; against the artifices of the illusionists he sets "measure, number, and weight." This naturally leads M. Schuhl to Plato's more positive views on art and their connection with the theory of Forms (Chapters 3 and 4 on "Pure Beauty and Imitation," and "The Value of Art"). Aesthetic charm or pleasingness is a valid principle for estimating products of the imitative arts only provided they exemplify no further principle, e.g. utility or resemblance. In so far as such another principle intervenes—under no matter what form—truth alone must be the supreme criterion, and "the rest scarcely counts." In exacting faithfulness of resemblance Plato had more particularly in view those newer schools whose technique involved falsifying the proper proportions of their models. Yet 'faithfulness of resemblance' must not result in a merely slavish imitation, however skilful; this Plato recognizes in the *Cratylus*. Here his hostility to too rigorous imitation marks, for M. Schuhl, Plato's reaction against a new school of extreme realists. Art is not a servile copying of reality; "it is permissible for the artist to invoke, in default of the Idea, the ideal" (that ambiguous notion which "oscillates between Eidos and Eidolon"). As we proceed, however, the initial opposition becomes increasingly 'diluted,' for Plato holds that art, imitative or purely decorative, is but one diversion among others, though a most subtle and pleasing one, M. Schuhl sets this judgment in its proper place when he reminds us that if art is for Plato "un jeu," so, too, is almost every other activity. "The composition of dialogues" is a "jeu"—a "very beautiful one; the dialectic of the *Parmenides* is a toilsome 'jeu,' the great myth of the *Politicus* is a 'jeu,' the physics of the *Timaeus* is a very reasonable 'jeu'!" So, too, the learned conversations of the old men in the *Laws*—these are "jeux"—and is not man himself a plaything of the gods?—"la vie n'est qu'un jeu; les choses humaines ne méritent pas qu'on les prenne au sérieux; et pourtant on ne peut s'en dispenser; partout chez Platon, le sérieux et le jeu sont inextricablement melês: comment pourrait-il en être autrement si, dès qu'intervient la représentation sensible —qu'il s'agisse de figuration plastique ou d'énonciation verbale—nous retombons au niveau du mythe, lui-même forme, plus ou noins sérieuse—du jeu?" The value of art, then, is properly to be construed through the theory of Forms and by reference to the Demiurge which, as both artist and artisan, fashions with consummate skill a physical world on the ideal model.

Professor Rey, whose recent works on the rise of science in Greece[1] have been so highly appreciated, has now inaugurated a series of monographs, the first of which[2] he devotes to Greek mathematics in the fifth century. It opens with a translation *in extenso* made by the late Paul Tannery of "the only great historical text which antiquity has bequeathed on the history of pure mathematics," viz. The Prologue to Proclus's *Commentary*. Pythagorean "arithmo-geometry" is closely examined, and the character of the advances made posterior by Hippocrates of Chios are made clear. An informing section on the history of mathematical speculation down to the middle of the century illustrates the tendency of science to become "un *a priori* de la technique." These mathematicians are chiefly occupied with three problems: the quadrature of the circle, the duplication of the cube, and trisection of the angle. Hippocrates' contribution to the first "places him in the front rank." Tradition accredits him with the composition of the first book of *Elements*, in which

[1] A. Rey, *La Science dans l'Antiquité*. I. *La Science orientale avant les Grecs*, 1930. Pp. xvii + 495. 30 Fr. II. *La Jeunesse de la science grecque*. Paris: La Renaissance du Livre, 1933. Pp. xvii + 537. 30 Fr.

[2] A. Rey, *Les Mathématiques en Grèce au milieu du ve siècle*, "Exposés d'Histoire et Philosophie des Sciences," No. 1. Paris: Hermann et Cie, 1935. Pp. 92. 18 Fr.

fragmentary and unconnected empirical generalizations are for the first time in history replaced by a well-ordered series of deductive demonstrations. Hippocrates thus marks the fruition of Pythagorean effort, and establishes geometry essentially in the form in which we now know it.

Among shorter contributions that have recently appeared, several are of outstanding importance. Two brief "Notes" on the *Philebus* and on Zeno's arguments against the existence of movement are made accessible in the collected works of the late Jules Lachelier,[1] who wrote little, but with a fine discernment. M. Festugière's paper[2] shows Antisthenes' difficulty about predication to be a metaphysical and not merely a logical one. The origins of Antisthenes' views should be traced in Parmenides, not in Protagoras, and a most suggestive *rapprochement* of his moral and logical theories is indicated. Professor A. Rivaud[3] has re-examined evidence for the tradition that Plato borrowed the political themes of the *Republic* from the Pythagoreans. The view is not confirmed by Aristotle, but it occurs in Aristoxenus. But this writer, whose fragments are sometimes in contradiction, shows the Pythagoreans mainly hostile to politics. Yet, as M. Delatte emphasizes, there is a striking degree of similarity between their political ideas and those of Plato; e.g. on marriage and education. Reviewal of the evidence leads M. Rivaud to doubt a Pythagorean inspiration of the *Republic*. The Pythagoreans among whom Aristoxenus (who gave currency to the legend) lived, held that Plato had plagiarized Pythagoras. But political views among this school were a late, post-Platonic development; the sources of Plato's political ideas are more likely to be found among the Cynics and Sophists than among the Pythagoreans.

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PHILOSOPHY IN GERMANY

Karl Popper's aim in *Logik der Forschung*[4] is to consider the method of investigation used by the empirical sciences. Many people would say that their procedure is marked by the use of induction, and accordingly that the logic of scientific investigation is the logical analysis of induction. But Popper disagrees. Scientific procedure consists of two steps, an hypothesis is formed, and then it is tested. Logic is only concerned with questions of validity, and thus is only concerned with the second of these steps. But every method of testing validity is deductive, and thus the logic of scientific investigation is the study of deduction as used by the empirical sciences.

How, then, are these sciences distinguished from logic, mathematics, and metaphysics? Not, as the positivists suppose, by the logical dependence of their general laws on particular propositions. For no particular proposition can verify a general one. The positivists are wrong in their view that the laws of science can be verified; and if, as they suppose, verifiability is the criterion of significance, then not only metaphysical, but also scientific propositions are meaningless. In giving his own view Popper maintains that

[1] *Œuvres de Jules Lachelier*. Paris: Alcan, 1933. 2 vols. Pp. xlv + 219; pp. 224. 80 Fr. ensemble.

[2] A. J. Festugière, "Antisthenica," *Revue des Sciences philosophiques et theologiques*, XXI, 1932. Pp. 345–75.

[3] A. Rivaud "Platon et la politique pythagoricienne" in *Mélanges Gustave Glotz*. Tome II. Pp. 779–92. Paris: Les Presses Universitaires, 1932.

[4] *Logik der Forschung*. Vienna: Julius Springer. 1935. Pp. 248. RM. 13.50.

the methods by which we distinguish natural science are like the rules of a game, and we accept them because they serve our purpose. We shall find it fruitful, he claims, to define an empirical system or law as one which can be *falsified* by experience. The laws of nature can be expressed in the form—there are *no* so-and-soes, e.g. There is no *perpetuum mobile*. Then they do not assert that something exists, but that something does not exist. They rule out certain possibilities. If we find that a so-and-so does in fact exist we disprove the law. Suppose our general law asserts: "There are no white ravens." Suppose we find there is a white raven at the space-time position *k*. This entails that there are white ravens, and this is incompatible with our general law, which is thus shown to be false. But on the other hand we cannot disprove propositions of the form, there *are* so-and-soes, and these are "metaphysical."

Propositions such as "there is a raven at *k*" Popper calls basic propositions. These always assert, "there is a so-and-so at *k*." They are particular propositions about observable facts. On what does the validity of basic propositions depend? According to most positivist views it depends, says Popper, on an immediate conviction of their correspondence with experience. Or, as some positivists have said, they do not require proof because they describe what is immediately given. But, according to Popper, science is only concerned with intersubjective propositions, i.e. such as can be tested by more than one observer. And these, as, for example, "here is a glass of water," always refer beyond immediate experience. He maintains that every basic proposition is an hypothesis, and cannot be verified. It can only be tested by testing other propositions which we deduce from it. In science there are no "absolutely ultimate" propositions. This entails an endless regress, which. however, is not vicious because it is used to falsify and not to prove. And it comes to a "natural end," because we decide to accept certain propositions without further testing. Thus, ultimately, science is based on decisions. Popper then goes on to develop and apply his views.

Max Dessoir's *Vom Jenseits der Seele*[1] is a very detailed discussion of occult phenomena and of the theories to which they give rise. On the one hand we have to discover what really occurs, and on the other hand to consider what explanation this requires. In considering the latter we have to ask what light these phenomena throw on the mental processes of the persons in whom they occur. But there are also other questions, since people have supposed that these phenomena give evidence of further facts, in particular of human survival and the existence of a spirit world with which certain people on earth can communicate. And the occult phenomena play an important part in speculative theories about the universe, such as Christian Science and Anthroposophy.

Thus the question of evidence becomes of central importance. Dessoir points out that we can only accept the spiritualistic hypothesis if we discover events which can be explained in no other way. And the evidence for such events must be of a strictly scientific character. But whenever conditions have been strictly controlled and only reliable observers been present, no such event has ever occurred. Most of the evidence for occult phenomena lies at the other extreme. It is derived from unreliable, even weak-minded observers, and recorded after the lapse of time has allowed full scope for fancy and forgetfulness. Dessoir points out how unreliable our observations are. If an event does not in fact tally with what we expect, our imagination fills in the gap. Suppose we are told by a conjuror that he is going to perform

[1] *Vom Jenseits der Seele.* Stuttgart: Ferdinand Enke. 6th edition. Pp. 562, RM. 16.

the same movement several times, it is sufficient for him to perform it twice for us not to notice the difference in the third movement which contains the trick. If I am told that someone is writing on a slate, and at the same time hear a scratching, I take it for granted that someone is writing. In observation of paraphysical phenomena the conditions are particularly adverse. It is dark, music is being played, one is not allowed to touch the medium, events happen suddenly, one becomes less alert through waiting a long time, and the emotional atmosphere is so tense that even cool observers are affected. In these conditions imagination grows rampant—one feels a touch or sees a light, and these become all manner of things, giants' fists, children's hands, dogs' heads, and so on. Every obstacle to reliable observation is present, so that even reliable observers are severely handicapped.

Dessoir gives a detailed account of both parapsychical and paraphysical phenomena. He considers a great many cases, and speaks a great deal from personal experience of them. The parapsychical phenomena include prophetic dreams, telepathy, clairvoyance, and automatic communication. He believes there is no conclusive evidence for any peculiar psychical power, but that there is a strong case for one, namely, telepathy, i.e. knowledge of other people's mental states which is not acquired through the usual channels. He thinks that telepathy may occur without either participant knowing that a communication is taking place, and that, in this way, forgotten and unnoticed experiences may be communicated. He points out that telepathy then becomes an exceedingly useful hypothesis, for it explains most of the facts alleged to be evidence of clairvoyance and communication with spirits. He believes, however, that there may be something more, that some people may possess a peculiar capacity for discovering facts and communicating them automatically. We cannot be sure at present whether this is so or not. But he completely rejects the theory of communication with spirits. And in criticizing this theory he stresses its ridiculous aspect. Listening to reports from the other world is like overhearing a conversation in a railway carriage between two members of a family, one of whom is mentally defective and the other deaf. Or, to take another point, spirits speak of light and colour, but have no eyes, they walk and have no limbs, they smoke cigars, drink whisky and soda, and in general duplicate life on earth in a world which is none the less immaterial.

Paraphysical phenomena may be ordinary occurrences, such as knocks and changes of place, which occur in peculiar circumstances. Or they may be extraordinary occurrences, such as materialization. Dessoir believes that deception plays a great part in this sphere, and points out many cases where it has been established. He allows, however, that some require further examination. We can be sure that in all cases the medium, and not spirits, is responsible for what occurs. But we cannot as yet be certain whether there is always deception, or whether the medium sometimes possesses an unusual power over material objects.

In conclusion, Dessoir criticizes speculative theories of the universe, such as Christian Science and Anthroposophy. It is obvious that such theories accept uncritical accounts of occult phenomena. But it is also important to note that their wild flights of fancy are guided by lines of thought we find in primitive theories. Dessoir believes that the same impulses lie at the bottom of all idealistic theories, reverence for the world and desire for understanding. But primitive, or magical, idealism accepted types of explanation which later forms have rejected. It tried to explain things in terms of similarity, and in particular to see the smaller as a copy of the larger. Thus, for example, the heart is in the middle of the breast because the sun is in the middle of the

planets, dogs go mad when influenced by the dog star, and grass of Parnassus heals liver troubles because its leaves resemble the liver. And magical idealism combines this use of similarity with a strong tendency to symbolize—everything obvious points to something mysterious which it resembles. Anthroposophy uses this type of explanation when, for example, it maintains that the physical heart points to an aether heart. Anthroposophy and theories of this kind have simply reverted to primitive ways of thought.

HELEN KNIGHT.

NEW BOOKS

Relativity, Gravitation, and World-Structure. By E. A. Milne, M.A., D.Sc., F.R.S., Rouse Ball Professor of Mathematics, Oxford. (London: Oxford Clarendon Press, Humphrey Milford, 1935. Pp. viii + 365. Price 25s. net.)

This book represents the position at present reached in the evolution of an idea. A few years ago Professor Milne drew attention to an extremely simple interpretation of a remarkable astronomical fact—namely, that the extra-galactic nebulae appeared to be receding from the earth at speeds proportional to their distances. His interpretation was the natural result of approaching the problem from the opposite direction to that which was commonly chosen. Instead of asking why a nebula should move faster when it was farther away from us, he asked why a nebula should be farther away from us when it was moving faster. The answer, of course, was obvious: it was farther away *because* it was moving faster. Professor Milne pointed out, further, that this state of affairs was the *inevitable* result of allowing the bodies in an unenclosed system to move in random directions with uniform velocities. No matter what those directions or velocities were, the system would in time expand in precisely the way in which the universe of nebulae appears to be expanding.

All previous attempts to interpret this phenomenon had been made in terms of general relativity. Milne's idea was not necessarily inconsistent therewith, but it suggested to him that to invoke the extremely generalized concepts of relativity in this connection was to disguise the inherent simplicity of the problem—like using the familiar steam-hammer to crack a nut. Further reflection, however, showed that the matter did not end there. If Milne's idea was valid, the questions naturally arose: Why should the nebulae have been allowed to continue in uniform motion without interference from their neighbours? and why should we belong to the one nebula whose velocity was zero? It became clear that to answer these questions either the general theory of relativity had to be called in again or a new theory had to be constructed which would not merely account for the law of nebular recession but express that law as the inevitable result of some more fundamental principle.

Milne chose the latter alternative. He postulated a "cosmological principle," according to which the universe was such that a number of observers in relative motion were possible whose views of it were, on the whole, identical. Such observers were said to be "equivalent," and he showed that if there were an infinite number of uniformly distributed extra-galactic nebulae, each containing an observer, then the postulate that all these observers were equivalent was consistent with the observed facts of nebular motion. We ceased to be at the centre of the universe in any special sense because in an infinite universe every nebula was equally at the centre; and gravitation needed no additional consideration because the law of gravitation, whatever it was, was subordinate to the cosmological principle: "gravitation" was simply the name given to the characteristics of motions which satisfied that principle.

This opened up an enormous field for investigation, and the book before

us gives the results of the preliminary exploration of that field. But it gives more than that. As the basis of a theory of material motions the cosmological principle inevitably challenges comparison with the general theory of relativity: it must be either equivalent thereto or inconsistent therewith, because both claim to be capable of giving a complete description of purely "mechanical" motion. Milne holds strongly that his theory is not identical with general relativity, and he gives several criticisms of the latter which will need to be answered by those who remain unconvinced by his alternative. Furthermore, he attempts to place his theory on a firm epistemological basis by considering the possibilities of observation, and he claims that the whole of his superstructure is built on a foundation of observations which can be rigidly defined and accurately carried out by experimenters. For the majority of the readers of this journal this will be the most important part of the work, and an article discussing it will be found on page 48. It suffices here to say that Milne employs only one measuring instrument—a clock—with which he measures both space and time, his contention being that our knowledge of the passage of time is intuitive and therefore inalienable (though the system of *measuring* it remains optional), while the idea of space is arbitrary.

Professor Milne points out that if his epistemological premises are accepted, the investigations which he describes have a theoretical value quite apart from their application to the universe. They represent a *possible* universe, and comparison with what we observe will decide how far they represent the *actual* universe. Such comparison gives him ground for satisfaction. In the first place there is, of course, the fact in which the theory originated, that the extra-galactic nebulae show characteristics which qualify them to be regarded as the habitations of "equivalent" observers. Considering, then, any freely moving particle, we may deduce the general quality of its motion from the requirement that if the universe contained an indefinitely large number of such particles moving in all possible ways, those ways would necessarily be such that the descriptions of the whole system given by observers on all nebulae would be identical. But such a requirement effectively prescribes the law of gravitation. Milne is not yet able to state this in the detailed form given by general relativity, but he obtains a partially undetermined function of space and time measurements which expresses conditions to be satisfied by any specific law of gravitation which may later be derived.

We cannot discuss all the identifications which Milne makes between the characteristics of his ideal system and the observed phenomena of the universe. From an impressive list of correspondences we may select for mention a suggestion with regard to the much-discussed cosmic rays. If a multitude of arbitrarily moving particles are introduced into Milne's system, the cosmological principle requires that their velocities shall increase up to the velocity of light, and in this fact he finds an interpretation of the behaviour of cosmic rays. It is not an explanation of the existence of those rays, because no mode of origin of the particles is considered, nor is any reason suggested why they should be of the size of protons and electrons rather than galaxies. Correspondence between theory and observation, however, is found in the fact that if the postulated particles are supposed to have existed in the free state for a long time, they should, like those observed, have high speeds and be moving in all directions equally.

Milne's discussion includes some beautiful mathematical work, conducted with all the skill and rigidity which one would expect from him. The writing is usually clear, and conveys the enthusiasm with which the author has evidently performed his task. The continual advent of new ideas during the

progress of the work is shown by the additional notes and occasional passages in the general text which have not succeeded in adapting themselves to their surroundings sufficiently to disguise their late arrival. At times the style tends towards the rhetorical, but not infrequently on such occasions a particularly illuminating sentence occurs which is worth the cost. One has the feeling that the presentation would have been more satisfying if the emotion had been recollected in tranquillity rather than displayed in its original heat, but judgment on such a point is difficult. The field opened up is evidently limitless, and after all, a little incoherence is better than eternal silence. Professor Milne has rendered a great service to cosmology, not least by directing attention to the importance of establishing theories on a sound philosophical foundation, and the further development of his line of thought will be followed with the greatest interest.

HERBERT DINGLE.

Return to Philosophy. By C. E. M. JOAD. (London: Faber & Faber Ltd. 1935. Pp. 279. Price 7s. 6d.)

This book is well described as "A Defence of Reason, An Affirmation of Values and a Plea for Philosophy." Its main destructive aim is to discredit the logical and ethical relativism which has of late been cultivated in some literary circles. Thus Mr. Joad dons the cloak of Socrates. Constructively it seeks to state, in a confessedly dogmatic fashion, the outlines of a temperate philosophical rationalism which culminates in a kind of mystico-aesthetic intuitionism. Here Mr. Joad becomes more or less a Platonist. He finds a good deal to denounce and not much to praise in the modern world, and incidentally he has his witty and utterly devastating fling at Mrs. Eddy. Unfortunately Mrs. Eddy cannot, and her followers will not, feel it.

The opening chapter on "Bunkumismus, or Reason's Underworld," is a delightful piece of fun with the serious intention of underlining the peculiar difficulties inherent in philosophizing. It is all too true that the line dividing profundity from abysmal nonsense can only be traced by the highly trained mind—and not always then. Indeed, our own "left wing" philosophers will have their doubts about Mr. Joad. His treatment of Aldous Huxley's supposed renunciation of truth and worth is as hard as it is deserved: but it arouses the reflection that, perhaps, to blaze away at "literary" men is akin to the sport of shooting sitting pheasants. They make poor game for the professed philosopher. D. H. Lawrence's "belly worship" is similarly dealt with, the advocacy of "impulse" being justly countered by Bishop Butler's doctrine of cool self-love.

Mr. Joad makes no bones about the elevating character of philosophy. By its means a man may "break through" into a "world of values" transcending both the world of thought-objects and (*a fortiori*) of material existence. In this it is taken to be akin to art, and both, finally, to "mysticism." The reviewer wonders whether this sort of mystico-aestheticism is of much value either as aesthetics or as theology, but this is for the reader to judge. His emphasis of the penetration, by philosophic vision, of "another" world conjures up the image of Hume's ghost, hugely amused to find his *Treatise of Human Nature* recommended for its "numinous" quality. This would appeal to what Mr. Joad calls his "catlike malice."

Without a doubt this is a book well worth reading by the philosopher in his off hours, and by all and sundry as a first book in philosophy.

RALPH E. STEDMAN.

The Two Sources of Morality and Religion. By HENRI BERGSON. Translated by R. Ashley Audra and Cloudesley Brereton, with the assistance of W. Horsfall Carter. (London: Macmillan & Co., Ltd. 1935. Pp. viii+278. Price 10s.)

If M. Bergson had written no other work, *Les Deux Sources de la Morale et de la Religion*—translated in the volume before us with an art that makes it easy to forget that English is not the direct medium of expression—would of itself suffice to mark out its author as a philosopher of rare and original genius. All the brilliant qualities we associate with M. Bergson's earlier masterpieces shine here with a lustre apparently undimmed by time. And there is the same incomparable felicity of presentation in language at once colourful and precise. Just how far the bold speculation of the present essay is successful in illumining the two provinces of experience with which it is concerned is, naturally, a matter upon which there will be many opinions. But that M. Bergson at least throws shafts of revealing light upon more than one dark corner of these provinces is not likely to be disputed even by those who are least in sympathy with the general trend of his thought.

What we are given in this work is, essentially, the ethical and religious philosophy of the protagonist of creative evolution. A conspectus of the fields of ethics and religion is found by M. Bergson to yield certain broad conclusions which cry aloud for interpretation in terms of his own metaphysical theory. The reviewer may as well confess at once his suspicion that the facts would not suggest these particular conclusions to a mind not already predisposed to their discovery by definite metaphysical prepossessions. It is not improbable, however, that readers who accept the metaphysics of creative evolution will feel that here for the first time has the moral and religious life of man been presented in its true cosmic significance.

Following M. Bergson's own order, let us consider first his theory of morality.

M. Bergson professes to discover two distinct forms of morality. It is not a matter merely of logically distinguishable aspects, but, quite definitely, of existentially separable kinds—albeit in our actual experience they tend to interpenetrate in many ways, and pure cases of either may be hard to detect. These two moralities M. Bergson calls respectively "closed" morality and "open" morality. They differ from one another both in their content and in the nature of the urge which underlies them. Closed morality manifests itself in a multitude of duties whose unity lies in their common subservience to the preservation and cohesion of the social group. It consists essentially in the fulfilment of one's function as an organ in the social organism. The obligation which we feel to its observance is at bottom due to the pressure of *habit*—the socially oriented habit of feeling, thought and action which society, acting upon our inborn social tendencies, is inculcating ceaselessly into every one of us from the cradle to the grave. But we also recognize in ourselves, M. Bergson holds, a moral urge of a different order altogether. There is a moral urge which seeks expression in the service not of a limited social group, but of all humanity. This is the urge of "open" morality, which is universal where closed morality is particular, and which is dynamic, creative of new values, where closed morality is static, merely conservative of the old. The source of the urge of open morality is ultimately, for M. Bergson, that participation in the cosmic Life-force which is the especial privilege of the mystic. But for the generality of mankind the urge is less direct in its operation. It is mediated by the great creative spirits in whom the mystical strain is strong, "moral heroes" like Socrates and Christ whose

personalities have the power to awaken aspiration in the ordinary man. The force that operates here is one of attraction, rather than, as with closed morality, of *a tergo* propulsion. Open morality, as M. Bergson sometimes expresses it, is a morality of "appeal," closed morality a morality of "pressure."

This dichotomizing of the moral life has not, M. Bergson is aware, suggested itself, or at all events commended itself, to previous ethical thinkers. To M. Bergson, however, referring human life to its metaphysical context, the situation as he has portrayed it seems natural if not inevitable. Let us see how this is so.

The human species, like other species, is a product and temporary halting-place of the Life-force, the creative energy which is "precipitated into matter, to wrest from it what it can" (p. 178). There have been two main lines of the evolution of animal life; the one, in which instinct predominates, finding its most perfect expression in the ant-hill and the beehive, the other, the line of developing intelligence, in man. Now a high degree of co-ordination of individuals within the group is clearly as indispensable to the well-being of the human species as to the ant species. Nature, then, in "positing" the species, may be expected to have provided some mechanism which will ensure this co-ordination. In the ant-hill this is achieved with complete success by instinct. But where conduct is inspired by intelligence rather than by instinct, some other device is necessary. Intelligence left to itself will too often suggest as best for the agent what is hurtful to society. "Habit" is the device which nature adopts, and through it (we are told) nature achieves "results comparable, as regards their regularity, with those of instinct" (p. 16). Socially oriented habits exert a pressure upon the intelligent member of society analogous to the compulsive force of instinct upon the ant. In each case the result is the securing of that co-ordinated group activity without which the species could not prosper nor hardly even endure. This is the secret and ultimate source of the "obligation" which man feels towards the duties of the closed morality.

The ultimate source of the urge of open morality, as has already been indicated, M. Bergson finds in mystical experience. Man, though a member of a species posited with a determinate structure and determinate capacities, is not thereby cut adrift from the surging Life-force that gave him birth. He can still, in greater or less degree, be caught up into the current of its creative energy and participate in its forward drive. In the case of the few gifted beings whom we style "mystics" this immersion or absorption is profound: and for them the ethics of closed morality, the morality which opposes creativity and which, by implication, denies the deep-lying identity of the human species as a whole, reveals itself as hopelessly inadequate. Under their moral leadership the ordinary man becomes aware of new values, transcending bounds of race and nation, which make appeal through that mystical strain which is in him too weak to initiate, but strong enough to emulate.

Such, in very bald outline, is M. Bergson's theory. It seems to present some rather serious difficulties—though it is very easy, as one reads, to be seduced into at least a suspension of unbelief by the sparkling eloquence of M. Bergson's exposition.

There is surely a difficulty, in the first place, about the very conception of two ultimately distinct "moralities." We can all understand what is meant by speaking of two ultimately distinct moral ends or moral laws—though there are well-known embarrassments about a dualism even of this kind. But it is one thing to feel a moral urge towards two ultimately distinct ends,

another thing altogether to feel two ultimately distinct moral urges. If the urges are really different in their internal structure, why call them both by the same title?

M. Bergson would perhaps retort that the fault, if fault there be, should be laid not to his charge, but to that of the orthodox moralist. What *he* is doing is merely to describe and interpret the phenomena dealt with by the orthodox moralist under the rubric of "morality." If he finds confounded under that rubric two quite different types of conduct, it is natural enough to express this result by saying that there are really two moralities which "differ in kind" (p. 23). Whether or not one continues to use the same word "morality" for both is a terminological matter of comparatively little moment. What *is* of moment is to recognize that so-called "moral" conduct splits up into two quite different kinds, conduct directed to social and conventional values, with *its* specific urge, and conduct directed to trans-social and creative values, with *its* specific urge.

Now the trouble about this is that it is extremely hard to discover in M. Bergson's pages any plausible justification for insisting upon a difference of internal urge in the two spheres in question. Why should we suppose that the urge felt to fulfil the duties of one's station in the community necessarily differs in kind from the urge felt, say, to emancipate the slaves of some remote country? In point of fact it seems perfectly clear that such courses of conduct may very well, and constantly do, present themselves in the form of an imperative that is identical in nature. To say this is not, of course, tantamount to accepting ethical monism: though in the present connection it is not irrelevant to remember that ethical monists of repute, such as Green and Bradley, have made careful and elaborate attempts to show how a morality at first narrowly social and conventional may develop into a morality catholic and creative, without break of continuity even in the principle towards which the urge is directed—much less in the internal structure of the urge itself.

It goes without saying that one is not attempting to deny the *existence* of the urge of "social habit." Nor need one wish to minimize its potency as a determining force in human affairs. What one must maintain, however, is that the orthodox moralist is perfectly right in recognizing a will to social good which is independent of that urge, and which is, in fact, inspired by precisely the same kind of urge as is the will to trans-social moral values. Social habit does operate, without a doubt. But the point is that social conduct inspired by social habit and social conduct inspired by recognition of moral value are two distinct things, and it is the second of them that is of primary ethical interest.

The whole question, however, is a good deal complicated by M. Bergson's apparent wish to represent the compulsion felt from socially oriented habit as being of the very essence of what we mean by moral "obligation." If that were true, then conduct inspired by social habit *would* be a genuine form of "morality." But even M. Bergson's ingenuity does not seem to the reviewer to make this identification in the least degree plausible. The compulsion felt from a habit shows itself on introspection to be so fundamentally different from the compulsion felt from an end recognized as morally obligatory that it is even difficult to appreciate the temptation to identify them. The urge of social habit is not merely, as M. Bergson calls it, infra-intellectual. It is also, surely, infra-moral.

A further general objection to M. Bergson's ethical scheme seems worth mentioning. There is a notorious difficulty confronting dualistic and pluralistic ethical systems concerning the means of deciding between ultimate obligations

which in a given situation prescribe mutually exclusive courses. The difficulty on M. Bergson's type of dualism is of a more radical kind still. If closed morality commands us to follow a course A, and open morality appeals to us to follow a contrary course B, which ought we to follow? If indeed it be the case that the command of closed morality expresses the very essence of moral obligation (as M. Bergson, we have seen, on occasion urges), then the question is easily answered, for A will be what we recognize we "ought" to do, and B will really cease to be a "moral" alternative. But it is pretty certain that M. Bergson would not care to endorse this conclusion. If, on the other hand, we forget for the moment about the "obligatoriness" of the urge of closed morality, and regard A merely as the course towards which we feel the pressure imposed by social habit, no answer at all seems possible to the question of which course we ought to follow. For *neither* course now will have any cognizable connection with the moral ought.

The very individual character of M. Bergson's ethical views has made it difficult to discuss them with brevity, and not much space remains in which to deal with the "two sources" of religion. We can attempt little more here than to indicate the salient features of a philosophy of religion that abounds in interesting detail.

One of the "two sources," however, is easily enough explained. For it is identical with the source of open morality, viz. the mystic's union with the cosmic Life that animates all things. In language that at times rises to heights of great beauty and power M. Bergson describes the mystical experience and depicts the characteristic features of the "open" and "dynamic" religion that emanates from it—a religion whose God is the Spirit of Creative Love, and which works for a radical transformation of all humanity so that it may "by a living contradiction change into creative effort that created thing which is a species, and turn into movement what was, by definition, a stop" (p. 201).

But mystical experience cannot explain all that has a reasonable claim to be called "religion." Most actual religions have failed to be universal (as mystical religion must be). And most religions are enveloped in a complicated web of determinate dogma which mystical experience could not justify. Nor can the explanation of this latter feature be found, M. Bergson insists, in man's interpretative intelligence. For nothing is more striking than the intellectually grotesque character of much that the so-called "rational being" is ready and even eager to embrace as religious truth. To account for this "absurdity in the reasoning being" is, indeed, one of the most fundamental problems that confront a philosophy of religion. How do men come to invent and believe the frequently fantastic fables of divinities that are incorporated in their religions? Shall we be forced to postulate some special "myth-making faculty" in the human mind?

Yes, M. Bergson answers, that is precisely what we *are* forced to do. But for the philosophy of creative evolution it is no mere *ad hoc* postulate. If that philosophy be true, the myth-making faculty of man falls into place as a wholly natural product of the Life-force.

To understand this, we must remind ourselves of the peculiarity of that particular "deposit" of the Life-force which we know as the human species, viz. that it is dominated by intelligence rather than by instinct. Now intelligence, if not counteracted by other factors, is liable to defeat in more ways than one Nature's purpose in positing the species. We have already seen that it brings into jeopardy social cohesion. There are two other dangers to be taken account of. It engenders in man the conviction of the inevitability of death—a conviction which "must slow down in man the movement of life"

(p. 108); and it reveals to man the overwhelming complexity of the causal conditions of events in his world, thus tending to dishearten him in the initiation of his purposes and to breed in him an attitude of despondency and apathy. Now the "myth-making faculty" is a device designed by Nature precisely to counteract these influences. Through its quasi-instinctive activity are constructed "religious representations" which, by peopling the world with effective presences capable of aiding human purposes, and by envisaging a prolongation of human life beyond the grave, combat successfully the depressing representations of the intelligence: and which, again, gathering about them the common ritual and common belief of a group religion, act as an invaluable consolidating agency upon the social organization which the intelligence threatens to disrupt. "Static religion," the religion founded upon the myth-making faculty, is, in M. Bergson's words, "a defensive reaction of nature against what might be depressing for the individual, and dissolvent for society, in the exercise of intelligence" (p. 175).

Into the framework of this challenging thesis M. Bergson fits a number of fascinating incidental discussions. What he has to say concerning totemism, magic, the connection of the myth-making faculty with imaginative literature, the relationship between different types of mysticism, the future of civilization (in a concluding chapter), and upon many other topics, is always absorbing and often strikingly suggestive. The reader may perhaps remain doubtful whether, after all, the "myth-making faculty" is not itself a myth. M. Bergson may seem to dismiss somewhat too perfunctorily the possibility of accounting for the fantastic element in religion by the combined action of certain accredited psychical factors. What is perfectly certain, however, is that few readers will rise from a perusal of this book without consciousness of being intellectually and emotionally enriched by contact with one of the finest minds of our generation.

C. A. Campbell.

A System of Logistic. By Willard Van Orman Quine, Ph.D., Society of Fellows, Harvard University. (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, Humphrey Milford. 1934. Pp. xi + 204. Price, $4.50; 20s.)

This is a highly technical work, whose object is to carry the generalization of logical processes a stage further than that accomplished in Whitehead and Russell's *Principia Mathematica*. In the first fifty pages Dr. Quine expounds his fundamental conceptions in a preliminary way, without the technical rigour of the later part, and these pages will be found of great interest to students of general logic who do not wish to follow the author into the details of his technical developments. Dr. Quine has succeeded in using fundamental notions of such generality as to make it possible to bring together under single symbolic treatment a number of topics that in *Principia Mathematica* required separate treatment (e.g. classes, dyadic relations, and, in general, *n*-adic relations). He is enabled to dispense with a number of symbols which were found necessary in *Principia Mathematica* (e.g. the notation for propositional functions). He has succeeded in bringing within the scope of his purely formal treatment a number of matters that in *Principia Mathematica* had to be dealt with in an informal way. All this constitutes an important advance towards the ideal of a self-sufficient symbolic apparatus of deduction, through which instructions for the deduction of theorems within the system can be given in a form capable, as he himself says, of being carried out by a robot.

This great increase in generality is, however, attained only by basing the system on postulates which have an entirely different character from those of *Principia Mathematica*. These are simple, and can be grasped at once. Those of Dr. Quine are exceedingly complicated, and take some pains to unravel. The only justification for taking them as postulates is that they do serve as the basis for the highly generalized system which Dr. Quine presents.

There is a foreword by Professor Whitehead, in which he stresses the importance of Dr. Quine's book; his opinion that it "constitutes a landmark in the history of the subject" is authoritative.

The exposition is admirable.

L. J. Russell.

Philosophy: An Introductory Study of Fundamental Problems and Attitudes. By Clifford Barrett. (New York and London: The Macmillan Co. 1935. Pp. xiii+395. Price 12s. 6d.)

It is not at all easy to write an introduction to philosophy suitable for the in truction of beginners and of the instructors of these beginners. Indeed, the writer of such a book is the man that beginners, instructors, and publishers have long been wanting to find: and I do not say that Mr. Barrett is he. Nevertheless, Mr. Barrett is rather like him. He does not intrude his own point of view (which seems to be a form of quasi-theistic "idealism" designed to include, but also to supplement and to subdue "naturalism"); and although the smoothness of his exegesis disguises and to some extent actually mollifies the toughness of the matters with which he deals, he gives his readers quite a lot to bite upon.

The book follows the sound general plan of discussing what's what in philosophy, of subordinating history to general analysis and inquiry, and yet of supplying a useful account both of his recent and of contemporary discussions. Since its account of contemporary philosophy (principally American-English) is at least equal in bulk to its account of all previous European philosophy, the unwary reader might be left with an exaggerated idea of the importance of contemporary discussion; but at any rate he will not be tempted to regard philosophy as a dead thing. And it would be difficult to censure the author's itinerary through the categories of substance, relation, and causality to the themes of truth and of "value."

Although I have been surprised by several things the author says, and shocked by a few, I think I should convey a false impression were I to discuss any points of detail. The proper business of a reviewer in *Philosophy*, I am sure, is to inform the professional readers of that journal that if they are looking for a suitable introduction to philosophy for teaching purposes, they should examine this book with care. It is likely to suit some of them very well indeed, and to suit all of them better than most other introductions. A second business of such a reviewer is to commend the book to the attention of non-professional readers.

John Laird.

Self, Thought, and Reality. By A. C. Mukerji, M.A., Reader in Philosophy, Allahabad. (Allahabad: The Juvenile Press. 1933. Pp. xiv + 410.)

This book, influenced to some extent by the author's connections with the late A. S. Pringle-Pattison and with Professor Harold H. Joachim, of

New College, Oxford, has for its object "to lay the epistemological foundation of a theory of self by removing some of the obstacles which have persistently clung to the problem and obscured the real issues" (p. 2). The bulk of it consists, consequently, of "something like a survey of the currents of modern thought" (p. 7); and "the imperfect sort of originality" claimed for it lies in bringing those contemporary philosophical tendencies "within the fighting-range with each other by reformulating some of the basic principles of knowledge in terms of the present age, and developing them in a partially new direction" (p. 11). The result is "a theory of the universe which is neither purely idealistic nor entirely realistic," but which still its author, for his having been mainly "inspired by the thoughts of the eminent idealists," finds it not improper to call "an idealistic interpretation of reality" (pp. 9, 10). The realistic side of the theory is expressed in the contention that "the world, though correlative to thought, is not created by it, and so exists even when it is not revealed to an individual mind" (pp. 145–46), while its idealism consists in (1) protesting (with Green and *contra* Alexander) against the realist's turning the subject-object relation into an inter-objective relation, viz. through his confusion of mind with the subject, i.e. his ignorance of the "epistemological distinction between the ego as the ultimate presupposition of knowledge and the ego as mind which is only one thing among other things of the world" (p. 303); and (2) the deduction herefrom "that the self is the inexpugnable basis of Reality" (p. 329).

We thus get a purely epistemological part (Chapters I–IX), one (X- XI) leading over to, and one (XII–XIII) mainly engaged in the problem of self. Not before this third part Indian philosophy comes in, viz. through the system of Śankara as the one where the epistemological attitude is more prominent than anywhere else in the Vedānta. This part is introduced by some very sensible remarks on the "substantial help in modern controversy" that Indian philosophy can yield. We are then made acquainted with Śankara's strikingly modern arguments against materialism, his refutation of the Buddhist theory of becoming (dissolving the self into a series of momentary ideas) and of the Mīmāmsā and other schools looking (like Locke, etc.) at consciousness as accidental to the soul (psychological attitude), and finally with his answer to the vexed problem how the pure subject can be known at all, since for becoming known it must become an object. The answer (reminding of Plotinus) is that a correct knowledge of it in the absolute sense is only possible through a mystical intuition as the result of a sort of psychical metamorphosis which, however, is conditioned by systematic thought as a stage of discipline leading ultimately to the development of that higher faculty (p. 380). There is, lastly, a most interesting review—the first ever attempted, so far as I know—of the several lines, idealistic and realistic, of "neo-vedantism" that have sprung up (very much like the rivalling interpretations of Kant's system) as re-interpretations of Śankara's monism.

There is, so far as I can see, little to be blamed in this admirably clear work written in correct and fluent English and printed in bold type pleasant to the eye. But there are rather too many misprints there. And it is, I believe, to be regretted that the notion of the "Bewusstsein überhaupt" has been declared to be outside the scope of the book. For the Western reader at least would have certainly welcomed some information on the protracted controversy, in the school of Śankara, on the problem "whether the witnessing self is the individual or the universal self" (p. 363, n. 2).

F. Otto Schrader.

Studies in the History of Ideas, Vol. III. Edited by the Department of Philosophy of Columbia University. (New York: Columbia University Press; London: Oxford University Press, Humphrey Milford. 1935. Pp. 511. 21s. net.)

This book is a miscellaneous collection of essays without any apparent connection except the fact that they are all historical in character. They are mostly of very high quality, and I think it is true of any one of them to say that any person interested in the branch of philosophy with which it deals will be well advised to read it. Some will be all the more ready to do so when I point out that despite the traditions of the place of its origin the book shows very little trace of the influence of "pragmatism."

A book dealing with so many different subjects is quite impossible to summarize or criticize in detail in an ordinary review, so I shall confine myself to a brief indication of the contents. It fitly starts with a very brief historical survey by Professor Dewey of the chief empiricisms of the past. There follows the only non-philosophical article, by M. T. McClure, ingeniously arguing the theory that the Ancient Greeks owed their genius to race-mixture. Then come "Renaissance and Method in Philosophy," by Richard McKeon; "Cartesian Doctrine and the Animal Soul," by A. G. A. Balz; and "The Rôle of Descartes in Seventeenth-century England," by S. F. Lamprecht. "Locke's *Essay*," by F. J. E. Woodbridge, the briefest but not the least valuable of the articles, is an attempt to show in what the *empiricism* of Locke consisted; "Spinoza's Art and the Geometric Order," by Howard Selsam, throws some light on both the aesthetical and practical spirit moving Spinoza; "The Emergence of Space and Time in English Philosophy," by J. T. Baker, discusses the philosophy underlying physics in the sixteenth and seventeenth centuries; "Coleridge," by Rudolf Kagey, shows the merits as a philosopher of one who was the first to transplant something of Kant's philosophy into this country; "Hegel and Marx," by S. Hook, maintains effectively the theory that Marxism is not Hegelian but the reverse; "Mills's Methods and Formal Logic," by H. W. Schneider, tries to assimilate induction and deduction; "Impossible Numbers," by E. Nagel, outlines the history of the development of the conception of imaginary numbers up to Boole and concludes with a summary of certain fundamental facts and criticisms relative to the modern theory of the identity of mathematics and logic, a doctrine which the author will only admit in a rather modified sense; and, finally, in "Chauncey Wright's Pragmatic Naturalism," some account is given of the views of a man who is claimed to be a progenitor of Pragmatism. It will be seen then that this book includes some meat for most philosophic tastes in tolerable abundance.

A. C. Ewing.

The Neural Basis of Thought. By George G. Campion and Sir Grafton Elliot Smith. (London: Kegan Paul, Trench, Trübner & Co., Ltd. 1934. Pp. v + 167. Price 9s. net.)

Five of the six chapters of this book have been written by Mr. Campion. The remaining chapter is a Discourse delivered by Sir Grafton Elliot Smith at the Royal Institution on "The Evolution of Mind."

Mr. Campion starts out from James's views on the relation of consciousness to the brain. He accepts Semon's hypotheses of "engrams" and "engrammatic systems," and (too rashly) he identifies them with Head's "neural schemata," these furnishing "the neural correlates of the multitudinous psychological

elements which, when integrated into a more or less coherent aggregation of mental symbols or concepts, constitute what we ordinarily call 'knowledge' and which in their interactions and ever-changing functional relations constitute what we ordinarily call 'thought processes.'"

He accepts the view that "the cortex functions as the storehouse of past impressions and experience" and consequently is the seat of our engrams and schemata. (We may well pause to wonder whether conscious memory is not biologically older than the cortex.) "In the stratified arrangement of the multitudinous neurones in the cortex and the diverse complexities of the engrams embracing the neurones in these different strata we see the neural mechanism involved in 'Generalization,' in 'Classification,' and in 'Abstraction': in the 'Universals' and 'Particulars' of the Philosophers, in the 'Genera' and 'Species' of the Logicians and Biologists, and in logical constructions like the 'Tree of Porphyry.'"

Mr. Campion believes that the optic thalami, which according to Head and Holmes are the "centres of consciousness" for the affective aspects of sensation, maintain a continuous stream of ever-changing patterns of neural impulse flowing through the "multitudinous systems of 'engrams' or 'schemata,'" and that, by the reverse neural pattern from cortex to thalami, a constant circulation of neural impulse is provided, "thus keeping in an active state those 'engrams' or 'schemata' which form the neural correlates of the mental symbols or concepts which may be employed in any particular phase of consciousness through which we may at any time be passing."

This conception of a ceaseless circulation of neural impulses between cortex and thalami led him in 1929 to predict the discovery in the thalami of a counterpart to the "cortical association areas." In his Discourse Sir Grafton Elliot Smith informs us that such "elements" have since been discovered in the higher mammals; and he points out that the hypothalamus must also enter into and thus complicate this circulation.

Both authors allude to the danger of treating conative, cognitive, and affective processes as separate isolated entities; and Mr. Campion stresses the view that the concept is "a living plastic mental symbol subject to a process of organic growth" similar to that "which takes place in the material being of all of us." He contrasts this view with James's insistence on the invariability of the concept, regardless of the different sense in which the latter is there using this term. According to Mr. Campion, mental symbols embrace and "have variously been called ideas, concepts, presentations, representations, images, etc." But why these are necessarily mental *symbols* any more than percepts or sensations are, or why they should not all have meaning apart from and prior to language, Mr. Campion does not pause to consider. For him mental symbols "are the 'meanings' which the slowly interacting and cumulative influence of etymology, logic, usage, and tradition have attached to the terms which severally denote them."

Sir Grafton Elliot Smith's Discourse is an attempt to trace the neural basis, rather than the evolution, of mind mainly from the researches of Head and his collaborators and from what is known of the structure and evolution of the central nervous system. He describes as "the most significant factor in the evolution of mind" the transfer of the direction of movement from the mid-brain to the neopallium (or cerebral cortex), "an unconscious automatism" thus becoming "a consciously directed process"; to many the occurrence of such a transfer will appear most improbable. He believes the hypothalamus to be "the essential instrument of emotional expression": to it is given "the decisive influence in translating into behaviour the initiative to action which lies in the cerebral cortex." "The cerebral cortex, so to speak, is the mere

trigger which releases the activity of the brain and provokes and directs the movements." To many this, again, will appear a very inadequate statement. He alludes (unfortunately without adequate reference) to a recent neurological memoir which proves that "an impulse from one cortical area can only reach and influence distant areas [of the cortex] by travelling through the cortex itself. . . . Even in the simplest act of thought or skill, the whole neopallium participates." He thinks one must assume that in the primitive vertebrate "the thalamus acts as an affective organ of all senses other than smell," and that the hippocampal region of the cortex performs this function in regard to smell.

Enough has been said perhaps to convey a fair idea of the general tenor and scope of this book. Being a collection of papers written at different times by two close friends, it is apt to irritate the reader by the repetition of quotations and other phrases which it contains. For example, the same passage, cited from James's *Textbook of Psychology*, appears on pages 6, 51, 65, and 99; one from Bergson's *Introduction to Metaphysics* is quoted on page 52 and twice later (once at greater length) on page 66; and a sentence taken from Alexander's *Space, Time, and Deity* is to be found on pages 14, 50, and 122. Twelve lines in Sir Grafton Elliot Smith's Discourse, which occur on page 25, are repeated in the same Discourse on page 28.

C. S. Myers.

The Śaiva School of Hinduism. By S. Shivapadasundaram, B.A. With a preface by J. S. Mackenzie, Litt.D., LL.D. (London: George Allen & Unwin Ltd. 1934. Pp. 189. Price 6s.)

This purports to be an untechnical exposition of a small portion of the 28 Shivâgamas, the authoritative texts for Śaivaites. The dates of these texts cover a long uncertain interval, but the portion was translated from Sanskrit into Tamil in the twelfth century, with addition of the usual exegesis, a further commentary being added in the eighteenth century. The author has a lucid correct English, and has well paragraphed his exposition. Dr. Mackenzie's few words recommend the book solely as an Oriental charting of ethics. For me, whereas the charting fails in this respect to get as far as what I should like to see included in this subject generally as interworld-ethics, it is the distinctively *religious basis* opened up in Oriental ethics that is made important. Namely, that it is the common Divine nature in every man, woman, child which demands reverential recognition and warding from me. Where the author chiefly fails—and here, whether it be he as a Śaivaite, or his sources that default, for we never know if he or they be speaking—is in his seeing the soul as static and unchanging, the mere passive receptacle of inpouring knowing and desiring, not the co-operator with the Divine nature. And yet the soul he rightly sees as capable of becoming God. Here is surely assumed a dynamic nature, a nature which has its own *shakti*. This word he wrongly represents as "power." It does mean literally "ability to," but actually it was India's post-Buddhistic effort to find a worthy term for man's *will*, which Buddhism exploited without a single strong, fit word by which to express it. Others took up her decadent torch.

In calling the Mahābhārata a work *written* in the sixth century B.C., about five hundred years before India had any written book, the writer has let drop a heavy brick! And the paragraph on the conventional nature of religions is a piece of mere fancy.

C. A. F. Rhys Davids.

The Philosophy of Spinoza and Brunner. By WALTER BERNARD, Ph.D. (New York: The Spinoza Institute of America, Inc. 1934. Pp. 239. Price, Cloth $2.50, Paper $1.50.)

Spinoza has always seemed to stand a little outside of the main current of European thought—as Oldenburg neatly put it, he was "an odd philosopher, that lives in Holland, but no Hollander". This was probably the source of the snobbish verdict that I recently overheard, that Spinoza had "an untutored mind". Professor Wolfson has demonstrated this at least—perhaps overdemonstrated it—that he was well-instructed in medieval and Aristotelian lore; and that his mind was "untutored" in any other sense will hardly be contended by those who have made close study of the *Ethics*. Unfortunately, however, his "oddity" has made a philosopher who above all others desired to be treated objectively, and to found no school, occasionally subject to the hero-worshipping attentions of small groups of untutored disciples. I do not think that this is likely to do any great harm: it corrects itself by cheapening its own stock. What philosophy needs, however, is careful, precise, and comprehensive thought; not ecstatic glimpses of vague analogies and cloudy agreements, but principles that will at once bear analysis and yield fruitful intellectual results; in a word, not discipleship but discipline.

H. F. HALLETT.

The Hindu Conception of the Deity, as culminating in Rāmānuja. By BHARATAN KUMARAPPA, M.A., Ph.D. With a Foreword by Dr. L. D. BARNETT. (London: Luzac & Co. 1934. Pp. xv + 356. Price 12s. 6d.)

This was the writer's Ph.D. thesis for a London degree four years ago, and he has taken the advice I have given students and let its contents stand the test for four years of *bhūya-bhāva*, more-becoming in his growth, before lending it more permanent form in a book. Putting aside the Vedas, he analyses conceptions—I prefer this to his "conception"—of Deity in Upaniṣads, Gītā, Pañcarātra, Purāṇas, Āḻvārs in successive chapters, then in fuller detail in Rāmānuja. The literary style is lively and lucid; the reader will not here be nodding. I am glad to tell him of the work. The interpretation of Māyā is especially interesting.

I note that everywhere the author applies the masculine pronoun to the neuter concept Brahman, lending to That Which is *nirguṇa* the attribute of sex, but that is everywhere a linguistic difficulty. Greater perhaps is one's dissatisfaction, not with the writer, but with the way in which this or that cult or school has permitted itself to chatter about and "explain" Deity. Wiser was Job: "I will lay my hand upon my mouth." All must ultimately be for us as yet a matter of faith, a matter in which man has worded his ignorance, has aired his logic with limited premisses. In fundamentals we seek deepest certainties. We are certain, we know, that we seek a More than we have been, than we are. That More implies a Most, even if It be but an ideal point. Its reality alone makes the More have a meaning. That is all we can as yet frame "conceptions" about. Now this dynamic view of Being—the Becoming in a More—is just what I find was being felt after in the early Upaniṣads. The striking novelty in the increased use of the verb *bhū*, "to become," in the older sayings, testifies to it. But there is no trace of this as recognized in the book. It belongs to the concept of man as "willer," and of Deity as Willer, but India had no word for will, as the writer's fine Index betrays only too well.

The analogy of play as alone adequate to explain Divine activity opens a way to guess at "will" and "becoming" in Deity, but the one word India failed to frame, from the other she had turned away.

C. A. F. Rhys Davids.

The Historical Element in Religion. By Clement C. J. Webb, F.B.A. (London: George Allen & Unwin Ltd. 1935. Pp. 118. Price 4s. 6d.)

If in regard for the request of the Editor this review is brief, its brevity must not be taken as a measure of its interest and value and of my genuine appreciation and cordial recommendation of this volume. It consists of four lectures on the nature, the place, the depreciation, and the significance of the *Historical Element in Religion*, and an additional chapter in which the principle expounded is applied to four historical problems of Christianity. "What I understand by the historical element in religion is the tradition of the past of a religious community which is associated in the minds of its members with their sense of sharing in its life" (p. 25). In other words, individual religious experience depends on social religious inheritance. Even the contrasted types—the mystical and the speculative—can be shown from their own self-witness to be more dependent on such an inheritance than they profess to be. In no other religion is the historical element so important, because so essential to its distinctive character, as in the Christian, and for three reasons. "The first feature is the possession of a sacred book which is believed to be inspired to reveal the nature and the will of the God who is proposed as the object of worship. The second feature is the conception of that God as a transcendent Being communicating His will through the medium of prophets to whom He spoke directly and of a community to which is entrusted the message thus received. The third is the divine dignity attributed to its founder" (pp. 36–37). The basis for faith which this historical element afforded has been shaken by "a sense of insecurity in all traditional beliefs about the past, due to the destructive results of a new criticism" (p. 50). Some have sought refuge from this insecurity in depreciating the value of the historical in comparison with other elements in religion. What Spinoza, Lessing, Kant, and Hegel advance in this connection is critically examined by the author. What is said of Spinoza deserves quotation. "I cannot find in Spinoza's declared view of the relation of God to morality or in his conception of the universal system which he calls God, anything which, apart from the influence, surviving in his soul, of the faith which he had inherited but abandoned, can justify either a religious view of morality or a religious attitude toward God" (p. 56). The significance attached to historical religion in the "immanentism" of Croce is recognized; but a thorough denial of any legitimate place for a historical element in religion by a recent writer, Mr. Oakeshott (*Experience and its Modes*), is more fully refuted. Recognizing that the interest of religion is a practical one and yet so vital that it cannot be indifferent to the challenge of criticism, the author sums up his conclusion in the words: "While such a tradition is certainly not a sufficient guarantee of the actual past occurrence of even conspicuous details, it is yet a witness to the historicity of the general situation presupposed in the present consciousness of the community; and it is perhaps unnecessary to add that if there be a real difficulty in explaining otherwise the existence and character of the community, where these are attested by unquestionable evidence, this fact affords an important corroboration of the tradition in question" (p. 89). This guiding principle is applied to the tradition of the

Virgin-Birth, and results in the Scottish verdict of "non-proven." In regard to the Resurrection of Christ, apart from minor details, the author holds that Christian believers are "justified in professing their confident persuasion that only a genuine experience of intercourse with a living person victorious over death can be behind the original creation of the Christian Church, its continuance and frequent revivals during the succeeding centuries, and the renewed sense to-day in many quarters—and those in nowise out of touch with what is most vital and free from prejudice in contemporary life and thought—that in the Christ whom the Church proclaims as the supreme revelation to men of a God who is spirit, lies now, as so often in the past, the only hope of a world seeking salvation from fear and despondency in face of a universe whose physical immensity threatens to reduce to insignificance the human spirit, which yet can never abandon its consciousness of superiority to all that is not spirit" (pp. 104–5). On similar grounds, the institution of the Lord's Supper by Christ is regarded as probable; but more uncertain is the conclusion regarding the special commission to Peter. I find myself in nearly all points in so profound accord, that there is no ground for any dissent. But I may refer to one consideration which is not mentioned in the argument, namely, that which Herrmann has urged in his pamphlet *Why does our Faith need historical facts?*

ALFRED E. GARVIE.

Logische Syntax der Sprache. By R. CARNAP. (Vienna: J. Springer. 1934. Pp. xi + 274.)

Logical Positivism has still to produce a stable formulation of doctrine. And the knowledgeable reader of Professor Carnap's latest and important contribution to Logical Positivism is likely to be impressed by the velocity with which his opinions (and the opinions of other members of the "Viennese Circle" of which he is a distinguished representative) are changing. No doubt a hostile critic would find it easy to establish inconsistencies, withdrawals, and changes of front in the complex of theories, as expounded, for instance, in the journal *Erkenntnis*, which have come to be known under the name of Logical Positivism. But too much can be made of the formal defects of a theory, whose process of growth may be as interesting as its final formulation.

Indeed, much of the interest of Professor Carnap's latest position is lost if his book is not approached genetically and seen as the latest stage of a tradition (if a heterodoxy can be called a tradition) which has included Hume, Comte, Karl Pearson, Ernst Mach, and Bertrand Russell among its chief representatives.

With however much variation in detail, these writers have shared a common empirical, "scientific" outlook, forming a basis for strong antipathy to metaphysics and distrust, amounting to rejection, of classical philosophy. And this common *weltanschauung* produces unmistakable similarity in the broad outlines of their systems. Thus in each case an affirmation in the value of science finds its working expression in emphasis on empirical criteria in the theory of knowledge and its theoretical formulation in some "principle of verifiability," seeking to restrict all knowledge to the model of scientific procedure. In its negative, prohibitory aspect such a principle stigmatizes as "meaningless" or "metaphysical" all entities, from God downwards, whose presence cannot in principle be detected in the laboratory, and thus, while claiming to be neutral with respect to orthodox philosophical positions, yet has fairly obvious ontological implications.

This is, however, often denied by supporters who will readily interpret the principle of verifiability, in terms of "economy," as an ascetic refusal to formulate redundant causal hypotheses. But the principle's application is in fact determined by epistemological rather than logical or aesthetic considerations of "economy"; entities are primarily rejected because their existence can be established insufficiently or not at all by empirical criteria. Thus the method has affinities to Descartes as well as to Occam.

The reference to Descartes makes it not unplausible that a principle of verifiability, combining a sceptical outlook in epistemology with a striving for the logical elegance associated with economy of postulates, may have an iconoclastic impetus which is not easily arrested at the level of uncritical scientific realism. Indeed, the principle invoked to expel metaphysics is soon seen to imply, in turn, a similar examination of notions like "other persons," the "external world," and "myself," which the scientist uses uncritically. And when knowledge of the external world is ultimately reduced to acquaintance with sense-impressions, the positivist who began by enthusiastic acceptance ends by destructive criticism of scientific procedure itself. Not merely superfluous causes, but causality itself is involved in the ruin; economy is a monster who destroys his friends with his enemies.

It would be bad enough if this were all, and the positivist were left with the embarrassing task of resynthesizing, in an analytic world of simple disconnected sense-data the continuity and the types of order which analysis has ostensibly decomposed. The paradox of an emphasis on empirical verifiability which ends by destroying the presuppositions of the scientific procedure on which its own arguments are based, and deduces an idealistic system from realistic premisses, might be passed off as a dialectical difficulty by those for whom dialectics are a convenient alias for bad logic.

In fact, however, the positivist finds it difficult to remain in a state of mild idealism. For immoderate doubt may refuse to be satisfied even by a solipsistic form of idealism, may "doubt" the reality of all sense-impressions except as presented at the moment of assertion (identifying the observable with the observed), and, resisting Descartes's illegitimate importation of the thinking *self* (a notion rejected at earlier stages of analysis) come to rest in a kind of instantaneous solipsism of the specious present, the *reductio ad absurdum* of economy and doubt. If it is at all possible to arrest this headlong progress from realist or materialist presuppositions, via sensationalism, to idealism and momentary solipsism, it still remains for positivists to produce the appropriate modifications of the principle of verifiability.

While Logical Positivism has not been able to solve these typical difficulties of earlier Positivism (as Carnap's struggles with "protocol-statements," private and public languages, etc., in his *Unity of Science* have shown) a shift of emphasis to problems of language, based on developments in logistic technique and inspired primarily (if unwillingly) by Wittgenstein, has given a new aspect and a new interest to its problems. Thus, to take one instance, the fundamental problem of relating "logical constructions" to the sense-data of which they are the "constructs" comes now to be regarded as a subordinate part of the more general task of the "logical analysis" of scientific languages and theories. And philosophy becomes identified with logical analysis.

In the restriction of analysis to languages, or linguistic systems, there is undoubted gain in clarity (though the underlying problems of epistemology are now concealed in the relatively uncritical notion of a "language"), and full use can be made of a wealth of detailed logistic material from the relational calculus of Russell and Whitehead to the axiomatic and metamathematical

researches of Hibbert and the latest symbolic inventions of the Polish logicians. On the model of these investigations, logical analysis has tended to be concerned with such problems as the exhibition of sets of necessary and sufficient axioms, and the study of internal consistency, categoricity (*Vollständigkeit*), isomorphism, etc. Such analysis is "logical" in that generalized sense in which logic is no longer distinguished, except for practical convenience, from mathematics, but agrees with it in being the science of general types of order.

It is Professor Carnap's merit in this book to have provided an explicit theoretical basis for these hitherto somewhat disconnected researches, and by providing definitions of the notions needed in such analysis, to have contributed materially to its successful prosecution. His account may be interpreted, from another aspect, as an attempt at defining the function of scientific or positivist philosophy. Unlike Wittgenstein, whose well-known views on the ineffability of philosophic insight are criticized and rejected (pp. 208–10), Professor Carnap is able to find a place for the new philosopher in the rearguard of the scientific movement. The philosophical contribution is the investigation of the mathematico-logical properties of scientific theories. In so far as such theories are insufficiently coherent or explicit, the history of scientific discovery has shown that exhibition of structure as by formulating unnoticed assumptions or inventing more adequate symbolisms may be an important contribution to clarity of knowledge.

Professor Carnap's attempt to define the analytic method in adequate detail and to pursue its consequences by applying it to concrete, specially constructed, examples, leads him to formulate two very interesting theses. First, the desire to replace philosophy by the mathematico-logical analysis of languages (or portions of languages as organized in systems) naturally leads to regarding the languages analysed *in abstraction from meaning*, i.e. as calculi or systems of objects of determinate kinds organized in series according to determinate rules. For the purpose or application of a system of objects (whether symbols or not) is irrelevant to its mathematical structure; the existence of rules regulating the number and variety of the elements and their modes of combination is the necessary and sufficient condition for analysis to be possible. It is the properties which can be deduced from such rules of formation and combination, without reference to the application (or meaning) of specific combinations which are the "formal" properties of a language. And logical analysis, or syntax, as Professor Carnap would prefer to call it, by analogy with ordinary grammar, is the study of such formal properties. Thus syntax becomes identical with the "algebra" or "geometry" of a certain class of calculi, those which bear sufficient formal resemblance to languages in current use.

It is important to notice that what would ordinarily be called rules of logic (e.g. the rules of syllogistic inference) are, in this view, taken to belong to the rules of definition which constitute the language. Indeed, it is essential to the possibility of "syntactic" analysis that a language should contain "rules of transformation" by virtue of which one sentence "follows from" others. [In a later chapter, Carnap is able to show how a definition of "follows from" (*Folge*) is in effect equivalent to a full specification of the rules of transformation, and is *sufficient* for the syntactical analysis of the language considered.] In terms of the rules of transformation, Carnap is able, in what is often the most ingenious manner, to define the usual logical notions. (An *analytic* sentence, for example, is one from which every sentence in the language follows.)

Since the complicated, arbitrary structure of current European languages

renders them unsuitable as illustrations of the method, Carnap invents two artificial languages for that purpose. The first is so constructed as to conform approximately to the finitist demands of Brouwer (restricted use of existential operators), while the second, having no such restrictions, is sufficiently complex for the representation, e.g. of contemporary physical theories. In each case various syntactical notions, such as "analytic," "synthetic," "synonymous," "inconsistent" are defined and investigations of completeness (*Vollständigkeit*) on the lines of Gödel's researches are pursued in detail. It is maintained that the results of syntactical analysis can be expressed in the symbols of the language analysed; the abrogation of the theory of types thus entailed is accepted, and leads to some interesting discussion of the familiar mathematical paradoxes. The reader will find much to admire in Professor Carnap's sure grasp of the elaborate technical apparatus needed in these investigations, and will be grateful for the generous amount of incidental reference to specific problems of logistic, the questions of modality, and many valued logics, to mention only two.

The assimilation of "laws of logic" to rules for the definition of a language leads up to a theory of logical relativity, a "principle of toleration," which is the second main novelty of Professor Carnap's position. This principle is a starting consequence of the final transition from positivism in the earlier form of a theory with ontological implication however concealed by protestations of scientific "neutrality" to the "pure" form of a logical technique. Where the earlier positivist "attacked" metaphysics, and to that extent betrayed scientific impartiality, the neo-positivist, who is content to analyse, finds it impossible to distinguish between science and metaphysics on the basis of strictly formal criteria. For one language, *qua* calculus, is as "good" as any other. It may be more complex, or bear a one-one correlation to some part of the English language, or have any other formal property which may ultimately affect its applicability or usefulness. But questions of application are strictly irrelevant to formal analysis or syntax. Thus the way is clear for a principle of toleration. Anybody can choose a language constructed on arbitrary principles—"everybody may construct his Logic, i.e. his form of speech, how he pleases" (p. 44), provided he is explicit as to the formal rules of combination of his symbols. There are no "oughts" in Logic—"In der Logik gibt es keine Moral." And the complete relativity of all logical notions follows.

Evaluation of this important theory must be based on appreciation of the motives which determine the analysis not merely of languages, but of languages *qua* calculi, in abstraction from meaning. Recent papers by Logical Positivists have made it clear that the trend in question is determined by much the same motives as inspired Berkeley's denial of the existence of matter, the desire to dispense with a duplication of two worlds: (*a*) the realm of propositions (intra-mental events), (*b*) the parallel world of facts (extra-mental events) known only by reflection, as true propositions, in (*a*). Now while the elimination of the realm of facts, by legislative edict, has about it an attractive air of economy and no metaphysical nonsense, it has the fatal disadvantage of breaking the link with experience, of reducing to vanishing point the significance of the insistence on verifiability from which positivism began. It becomes very difficult, for example, to find a purely *formal* characterization of those "atomic statements" which in modern positivist theory replace the ultimate elements of early sensationalism. Logical criteria alone, it seems, do not suffice to allow for differences in the epistemological status of propositions. The reflection in Professor Carnap's system of the historical fact that idealism has in practice usually been allied to a coherence

theory of truth is the difficulty of discovering a purely formal characterization of atomic statements. In effect this entails the unobtrusive jettisoning of the principle of verifiability. For atomic statements are the directly verifiable statements, and all other statements were, in the original positivist programme, tested for validity by their relation to atomic statements. But now we are not able to recognize even atomic statements; we can "choose" any statements to play the part of atomic statements. The total theoretical separation of a language from its meaning seems in fact to draw the sting out of positivism by permitting all systems (even if internally inconsistent?) indifferently, irrespective of their relations to experience and human purposes.

I do not believe that Professor Carnap would find it impossible to meet these objections; if sustained, they would in no way detract from the importance of his contributions to logistic theory. Enough has perhaps been said to indicate that Professor Carnap has written a most stimulating and thought-provoking book, which, by its uniformly high standard of presentation, the importance of the doctrines expounded, and the patience with which they are elaborated belongs to the best of recent philosophical literature. The promised English translation will be awaited with much interest.

M. Black.

Collected Essays. By F. H. Bradley, O.M., LL.D., F.B.A. (Oxford: Clarendon Press; Humphrey Milford. 1935. Pp. Vol. I, ix + 347, Vol. II, 348–708. Price 36s. the two volumes.)

The appearance of these two volumes, which complete the publication in book form of Bradley's writings, is a welcome occasion; for, although they contain little that has not before been printed, they make accessible for the first time some of his most characteristic essays. Here are reprinted, first, Bradley's two early pamphlets (now long out of print), *The Presuppositions of Critical History* (1874), and *Mr. Sidgwick's Hedonism* (1877); secondly, twenty-seven essays from *Mind*, the *International Journal of Ethics*, and the *Fortnightly Review*; and thirdly, six short "Replies to Criticisms and Notes" which (with one exception) appeared originally in the pages of *Mind*. To these are added two hitherto unpublished essays, *On the Treatment of Sexual Detail in Literature*, and on *Relations*; and a complete bibliography of his work.

The editors, who appear under the initials M. de G. and H. H. J., have performed their work admirably. The decision to arrange the essays mainly in chronological order was a wise choice; and the reader will be grateful for the care they have taken to provide all the necessary references and bibliographical details. The editing of the essay on *Relations*, which, left unfinished by Bradley, had to be pieced together from various MSS. and notebooks, called particularly for care and patience, and has been performed with the greatest skill. Everything, in short, that the reader could look for from the editors has been supplied.

Considered from the standpoint of subject, these essays fall into four main classes. There are, first, two essays, appealing to a more general and less technical interest than the rest—*The Evidences of Spiritualism* (1885), reprinted from the *Fortnightly Review*; and *On the Treatment of Sexual Detail in Literature* (1912), hitherto unpublished—which are admirable examples of the handling of important and interesting questions by an acute and liberal intelligence. Secondly, there are the writings which deal with (in a general sense) logical questions—the pamphlet on *The Presuppositions of Critical History*, and the unfinished essay on *Relations*, on which Bradley was working

at the time of his death in 1924. The pamphlet is interesting as the earliest of Bradley's published work and because it is one of the earliest discussions in English of the logical and epistemological questions connected with history. He was right, I think, when in later years he became dissatisfied with its conclusions, but it remains for us one of the most original and acute discussions of these questions. The essay on *Relations* was intended to be a rehandling of a subject on which Bradley had already written much; and as it appears here it is more like elaborate notes for a treatise than an essay. No fresh doctrine, so far as I can see, is propounded, but the discussion is fuller than any to be found in the *Principles of Logic* or elsewhere in Bradley's writings. He was right in believing that "the question of relations, their ultimate nature and place in the world of reality and knowledge" is "central"; and this treatment of it shows undimmed Bradley's intellectual vitality, his characteristic appreciation of difficulties, and his candid consideration of views which, in the end, he felt obliged to reject. What he has to say here and elsewhere on the problem of relations has yet, I think, to receive the critical consideration it deserves. Thirdly, there are the seven essays which deal with ethical subjects, ranging from the elaborate criticism of the *Methods of Ethics* contained in *Mr. Sidgwick's Hedonism*, to the brilliant four pages which consider the question, *Is Self-sacrifice an Enigma?* And there are, fourthly, the twenty essays which comprise the main bulk of Bradley's writing on psychology.

It will be seen, then, that these volumes are valuable chiefly (though not exclusively) for collecting together Bradley's contribution to psychology. Bradley had a clear notion of what he thought ought to be the subject-matter of psychology and of the general character of psychological, as distinct from logical or metaphysical, questions. A sterile purism in thought is, of course, the last thing of which he may justly be accused; but he knew that there is a difference between theory and practice, between psychology and metaphysics, between ethics and moral sensibility, between religion and philosophy, and he knew that distinctions of this kind are essential to clear thinking. In one section of *Mr. Sidgwick's Hedonism* he gives us again (he had already given them in *Ethical Studies*) his views about the general character of ethical thought, and in more than one of those psychological essays he indicates his notion of the general character of psychology. *A Defence of Phenomenalism in Psychology*, originally published in 1900 in *Mind*, states his view most comprehensively; and, while it is a view which, I think, must come to be accepted more and more as psychology assumes a genuinely scientific character, it is one of which we require still to be reminded. Bradley began the publication of these essays on psychological subjects after the appearance of the *Principles of Logic* in 1883, and they continued to appear at intervals in *Mind* until 1904; but they came mostly from the period subsequent to the publication of *Appearance and Reality* in 1893. His writing on psychology is characteristic of Bradley in two respects. It is concerned entirely with the analysis of the main constitutive concepts—e.g. sensation, thought, association, attention, memory, will—which form the framework within which "experimental psychology" (with which he confesses himself "scarcely at all acquainted") works. His task, he conceived, was to make some contribution towards the further determination of this framework of concepts, and so towards the creation of a more settled terminology in psychology (II, 377). And he was certainly right in believing that "in analysis there is still much to be done" (I, 180). In this respect he takes his place within the general purpose of the traditional "English analytical school." But further, besides the superior subtlety and acuteness of Bradley's analysis when compared

with such earlier representatives of this school as Bentham or James Mill, his writings on psychology are characteristic in respect of the attention they pay to, and the inspiration they draw from, the great mass of Continental work on the subject which belongs to the second half of the nineteenth century. Bradley's independence of judgment, in metaphysics no less than in psychology, is, perhaps, apt to obscure the remarkably wide acquaintance he had with the work of others, both in England and on the Continent. To the end of his life he remained, not only an independent thinker, but also a reader (cf. II, 653), and a reader always more interested in the work of his contemporaries than in that of earlier writers. Nevertheless, in spite of this foreign strain in his reading, Bradley takes his stand, as a psychologist, among his contemporary English writers—Bain, Sully, James, Ward, and Stout—and differs from them, not so much in outlook as in opinion, and because he never produced a systematic treatise on the subject. It may be remarked also that Bradley was a man admirably equipped for making a notable contribution in the analysis of psychological concepts. Added to a clear perception of the general character of psychology and the nature of its problems and presuppositions, he had a remarkable power of self-analysis, an acute and imaginative appreciation of difficulties, and great common sense. His contribution is, of course, fragmentary in that his writings do not contain a discussion of all even of the most important problems of psychology; but whenever he takes up a topic his treatment of it is thorough and masterly. The essays on *Association and Thought*, on *What do we mean by the Intensity of Psychical States?*, on *Active Attention*, perhaps stand out from the others by reason of their comprehensiveness. And the three elaborate essays on *The Definition of Will* remain his most notable single treatment of a psychological problem. The contents of these volumes are, I think, unlikely ever to turn out to be Bradley's most important work; but it does not require any perspective of time to make these writings on psychology appear, within their limits, some of the best in the English language.

MICHAEL OAKESHOTT.

Collected Papers of Charles Sanders Peirce. Vol. IV: *The Simplest Mathematics*; Vol. V: *Pragmatism and Pragmaticism*. Edited by CHARLES HARTSHORN and PAUL WEISS. (Cambridge, U.S.A.; Harvard University Press; London: Oxford University Press, Humphrey Milford. 1933. Vol. IV. Pp. x + 601; 1934: Vol. V. Pp. xii + 455. Price: Vol. IV, $6, 25s.; Vol. V, $5, 21s.)

Reviewers of the earlier volumes of Peirce's *Collected Works* have already commented upon the arduous task of editing his numerous and scrappy manuscripts, and upon the plan adopted by the Editors for arranging this heap of miscellaneous writings. It must suffice here to point out that no one of these volumes is complete in itself. Peirce had much to say on many different but often closely connected topics; he was, moreover, apt to see important connections where other people failed to discover any point of contact. Accordingly he often says the same things—though, unfortunately, sometimes in very different terminology—in many different contexts. This being so, it was inevitable that there should be numerous cross-references, backwards and forwards, some of the latter being to volumes not yet published. Volume V will certainly need to be considered again with reference to the as yet unpublished Volume VI, which is to contain Peirce's writings on metaphysics.

There is no specially close connection between the two volumes now being reviewed. Volume IV, entitled *The Simplest Mathematics*, contains his unpublished papers on logic, and on the foundations of mathematics, so

that it should be read in close connection with Volume III, containing his published papers on formal logic. A considerable part of Volume IV is taken up with Peirce's system of "existential graphs," which Peirce himself described as his *chef d'œuvre*. Agreeing with his father's account of mathematics as "the science which draws necessary conclusions" (see IV. 229*), he set himself "to study the workings of necessary inferences." He thought that for this purpose what was required was "a method of representing diagrammatically any possible set of premisses, this diagram to be such that we can observe the transformation of these premisses into the conclusion by a series of steps each of the utmost simplicity" (IV. 429). The system is worth examination even by those who, like the present reviewer, have no great liking for pictorial diagrams. Of more general interest is his discussion of signs, which overlaps considerably with papers already published in Volume II, Bk. ii. This discussion occurs in his articles on "Prolegomena to an Apology for Pragmaticism," to which it is extremely relevant. This article is the third of three articles dealing with "What Pragmatism Is," the first two of which are published in Volume V. They originally appeared in *The Monist* for 1905. It is somewhat disconcerting to have Peirce's published papers disjoined in this manner, but there is something to be said for the attempt of the Editors to bring together Peirce's various utterances on the theory of signs. The Editorial Note prefixed to each volume and the footnotes will enable the attentive reader to discover the order in which Peirce himself thought fit to publish his views.

The title of Volume V, *Pragmatism and Pragmaticism*, calls for some comment. William James ascribed the origin of "Pragmatism" as a philosophical doctrine to Peirce. This doctrine was taken up and developed by James and Dr. Schiller. "So far," says Peirce, "all went happily" (V. 414). But, he complains, "the word begins to be met with occasionally in the literary journals, where it gets abused in the merciless way that words have to expect when they fall into literary clutches." Moreover, he felt that his own original conception of the doctrine was "a more compact and unitary conception" than that of other pragmatists. To mark this divergence he renamed his own doctrine "pragmaticism." This doctrine Peirce regarded as essentially a method for making our ideas clear. The six articles in which Peirce first put forward this doctrine appeared in 1877 (*Popular Science Monthly*). The first, entitled "The Fixation of Belief," and the second, entitled "How to Make our Ideas Clear," are put by the Editors in Bk. ii of Volume V; the third, fourth, and sixth articles are given in Volume II, whilst the fifth will appear in Volume VI. The two articles contained in the volume being reviewed are familiar to all students of pragmatism. It is not necessary to summarize them here. All that can be attempted in this short review is to indicate wherein lay the originality of Peirce's "compact and unitary doctrine." It lay in Peirce's unusually penetrating apprehension of the fact that muddled thinking and the unclear use of language go together; that to clarify thought we must pay attention to language, and that in so doing we shall be led to a theory of signs. On one occasion Peirce formulated his fundamental doctrine as follows: "The entire intellectual purport of any symbol consists in the total of all general modes of rational conduct which, conditionally upon all the possible different circumstances and desires, would ensue upon the acceptance of the symbol" (V. 438). The acceptance of this doctrine would, Peirce maintained, enable us so to state our problems as to be able to see wherein a solution can be found. It is interesting to read Peirce's various attempts to apply his

[1] References are throughout to the numbered paragraphs; I follow the practice of the Editors in prefixing the number of the volume.

doctrine to selected questions, and to observe the way in which, from time to time, he modified his views. In spite of hesitations and obscurities due to entanglement with his own metaphysical theories, Peirce has anticipated to some extent the experimental theory of meaning. Both these volumes can be read with profit by anyone who has some inkling of the importance for philosophy of a clear theory of language.

L. Susan Stebbing.

Books received also:

A. O. Lovejoy and G. Boas. *Primitivism and Related Ideas in Antiquity.* (A Documentary History of Primitivism and Related Ideas. Vol. I.) Baltimore: Johns Hopkins Press; London: Oxford University Press; Humphrey Milford. 1935. Pp. xv + 482. 5 dollars; 22s. 6d.

J. Macmurray. *Creative Society. A Study of the Relation of Christianity to Communism.* London: Student Christian Movement Press. 1935. Pp. 196. 5s.

M. Ginsberg, D.Lit. *The Unity of Mankind.* (L. T. Hobhouse Memorial Trust Lecture, 1935.) London: Oxford University Press; Humphrey Milford. Pp. 29. 2s.

Sir R. W. Livingstone. *Greek Ideals and Modern Life.* Oxford at the Clarendon Press; London: Humphrey Milford. 1935. Pp. x + 175. 6s.

L. Cooper. *Evolution and Repentance.* New York. Cornell University Press. 1935. Pp. viii + 253. 10s. 6d.

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J. Laird, F.B.A., LL.D. *An Enquiry into Moral Notions.* London: George Allen & Unwin Ltd. 1935. Pp. 318. 10s. 6d.

N. Israeli, Ph.D. *Outlook upon the Future of British Unemployed, Mental Patients, and Others.* New York: Science Press Printing Co. 1935. Pp. 30. 50 cents.

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H. Kabir. *Immanuel Kant on Philosophy in General.* Translated with four introductory essays. Calcutta at the University Press. 1935. Pp. cl + 90. Rs. 5; 9s.

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Various: *Proceedings of the Aristotelian Society.* Vol. XXXV. 1934–5. London: Harrison & Sons Ltd. 1935. Pp. 284. 25s.

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W. Brock, Dr., Phil. *An Introduction to Contemporary German Philosophy.* (Introduction by J. H. Muirhead.) Cambridge at the University Press. 1935. Pp. xx + 144. 6s.

J. T. Peddie. *The Economic Mechanism of Scripture. The Cure for the World Crises.* Vol. II. London: Williams & Norgate. 1935. Pp. xx + 294. 10s.

B. Schultzer. *Transcendence and Logical Difficulties of Transcendence. A Logical Analysis.* Copenhagen: Levin & Munksgaard; London: Oxford University Press; Humphrey Milford. 1935. Pp. xv + 301. 12s. 6d.

The Siddhāntaleśasangraha of Appayya Dīksita. Vol. I. Edited and translated by S. S. S. Sastri. Madras, India: University of Madras. 1935. Pp. 413. Rs. 5.

A. H. B. Allen. *The Self in Psychology. A Study in the Foundations of Personality.* (Psyche Monographs, No. 5.) London: Kegan Paul, Trench, Trübner & Co. 1935. Pp. 282. 10s. 6d.

G. C. Field, M.A., D.Litt. *Studies in Philosophy.* (University of Bristol Studies, No. 3.) Bristol: J. W. Arrowsmith Ltd. 1935. Pp. 250. 10s. 6d.

H. W. B. Joseph, M.A., F.B.A. *Essays in Ancient and Modern Philosophy.* Oxford at the Clarendon Press; London: Humphrey Milford. 1935. Pp. 340. 15s.

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F. A. M. Spencer, D.D. *The Future Life. A New Interpretation of the Christian Doctrine.* London: H. Hamilton. 1935. Pp. 320. 7s. 6d.

R. Das, M.A., Ph.D. *The Self and the Ideal. An Essay in Metaphysical Construction on the Basis of Moral Consciousness.* (Reprinted from the *Journal of the Department of Letters.* Vol. XXVII.) Calcutta University Press. 1935. Pp. 251.

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G. Quartara. *La Femme et Dieu* (Nouvelle édition). Paris: Librairie Félix Alcan. 1935. Pp. viii + 335. Frs. 25.

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IN MEMORIAM

WILLIAM RITCHIE SORLEY

In Professor W. R. Sorley, who died on July 28th, philosophy lost one of the ablest representatives of the idealistic movement which dominated thought in this country during the latter part of last century and the beginning of this one. Born in 1855, and going from his home in Selkirk Manse to the University of Edinburgh, he came first under the influence of Professor Campbell Fraser, the leading exponent of Berkeley's Idealism, to which in the end, "though a wide compass round be fetched," he was to return from the more Platonic and Hegelian form of that doctrine that had inspired much of the intermediate period. From Edinburgh, after winning the Shaw Fellowship, the philosophical blue ribbon of the four Scottish Universities, he went to Trinity College, Cambridge, and, after taking the Moral Sciences Tripos, alone in the first class, was awarded a Fellowship in 1883. In 1888 he went as the first Professor of Logic and Philosophy to University College, Cardiff, and in 1894 was elected to the Chair of Moral Philosophy in Aberdeen, whence in 1900 he was called to succeed Henry Sidgwick in the Knightsbridge Chair of Moral Philosophy in Cambridge. This he held till his resignation in 1933.

He was one of the group of rising young Hegelians who wrote in the volume of *Essays in Philosophical Criticism*, which appeared in 1883 under the editorship of Andrew Seth (afterwards A. S. Pringle-Pattison) and R. B. (afterwards Lord) Haldane. His essay was a trenchant criticism of "The Historical Method" as applied to morals and politics, where action is moulded, not by any actual past but by the ideal of a form of life prescribed by self-conscious intelligence: "The materials of the ideal may themselves be traceable to experience, but they are formed anew by the reflective reason." It was this idea that he developed more fully in his first book on *The Ethics of Naturalism* (1885)—perhaps still the most thorough-going criticism of the attempt, represented in these days by such writers as Herbert Spencer and Leslie Stephen, to explain the rise of moral consciousness by appeal to the facts of biological and social evolution. At one point in its course human development passes from the control of custom to determination of conscious reflection on supra-biological and even supra-social ends appearing in the form of an "ought." Yet he still so far agreed with the naturalistic view in holding, with the then current form of Idealism, that the life of the individual could only be explained in terms of the whole of which it was a part and which was the dominating factor in the determination of its value and destiny. But in the course of the next twenty years the Idealism he had known in the 'eighties had been developed by Bradley and Bosanquet on lines which seemed to him, by following too closely the lines of a deterministic logic, to have endangered personality as an attribute both of God and man, and, by their doctrine of the unreality of time, to have destroyed the nerve of moral endeavour. This divergence was signalized in his chief book, which contained the substance of his Gifford Lectures, delivered in Aberdeen in 1914–15 and published under the title *Moral Values and the Idea of God*. I can remember the sense of freshness and power that this book gave us all at the time. It was a new departure to strike into metaphysics from the side of a philosophy of

value rather than of knowledge. We felt that if Theism was capable of defence, it must be in the line of the argument of this eloquent book. Whether the argument was itself unassailable, and whether he was right in returning from what might be called the Platonic to the Berkeleian tradition, may be a question. What is not in question is that his book, which has gone through three or four editions, is likely for long to remain the best statement of the philosophical basis of the doctrine which has come to be known as Personalism.

To Sorley's credit as a luminous writer stand several other books and numerous articles contributed to the *Cambridge History of English Literature*, the *Encyclopaedia Britannica*, *Mind*, and the *Proceedings of the British Academy*, of which he was a Fellow. He married in 1889 the sister of George Adam Smith, Principal of Aberdeen University. The elder of his sons, Charles Hamilton Sorley, like Rupert Brooke a poet, fell, like him, in the War. The Gifford Lectures are dedicated to his memory with the motto: "For they seek a country." No words could more suitably express the spirit of his philosopher father's own life and work.

J. H. Muirhead.

CORRESPONDENCE

To the Editor of *Philosophy*

THE PHYSICAL WORLD AND REALITY

Sir,

As a layman I must, in common with the majority of people, formulate a theory of the physical world and reality from whatever unspecialized knowledge I possess; being guided to some extent only by those better qualified to express an opinion than myself. Nevertheless, on reading Mr. Gomborow's article in the October issue of *Philosophy*, I feel constrained to enter a caveat against his complaisant suggestion that, because such tautological explanations as that the sun attracts the earth *because it does*, or that zinc displaces copper in solutions *because it does*, fail to satisfy an intelligent person, the real explanation must necessarily be the simple fact that God has willed they should.

With respect I would suggest that the latter theory not only is less acceptable to many intelligent persons than the former, but also does unpardonable violence to the idea of Immanent Deity. If we accept Mr. Gomborow's theory, as a logical consequence, we perforce accept the following *a priori* hypotheses, namely, (*a*) All "laws" of nature are "laws" extrinsic to reality; "laws," that is to say, imposed by Transcendent Will on an otherwise chaotic universe; and (*b*) the universe is essentially static, and its present-day dynamic quality is, or was, occasioned by some agency "outside" of and independent of reality. In other words, we are back at the mental stage of our nurseries when the image of God, first making the clock and then winding it up, was used to stultify our first questionings. Surely the physical world (or any other world for that matter) is the world made manifest to us through, and only through, one or more of the very limited number of senses with which we have been endowed. This world we *know* as a world essentially dynamic, and, if you like the expression, as a world essentially "orderly"—that is, a world exhibiting certain well-perceived and well-defined "laws"; but surely, again, that fact offers no reason at all for envisaging the world as *amenable* to those "laws," or for imputing those "laws" to anything other than intrinsic aspects of reality.

We appreciate those "laws" in much the same way as we appreciate the "greenness" of the visual world. They are "good" for us simply because they *are*, and *not* because it is good for us that they should be. The great drawback with most scientists and philosophers is that they are unable to recognize in this dynamic quality, in this orderliness, *essential* characteristics of the physical world; but only imposed and, as it were, incidental, characteristics. I feel that if Mr. Gomborow could see his way to attempt another hypothesis of the universe based this time on the assumption that things are simply because they are, the result would be instructive; provided only (and the proviso is important!) he embraced in that hypothesis a conception of Immanent Deity willing the best in man and infinite in potentiality for man's becoming.

I am, Sir, yours faithfully,
Frank W. Robinson.

Long Sutton, Lincolnshire,
October 30, 1935.

To the Editor of *Philosophy*

PHILOSOPHY AND PRACTICAL ETHICS

My Dear Editor,

Two passages in your October issue have so impressed my mind that I feel moved to write you about them. One of them occurs on page 481, in Mr. J. L. Stock's

review of Sir Herbert Samuel's book on *Practical Ethics*, and is as follows: "Such a book will, of course, necessarily be for non-philosophers" (the implication of this being apparently that philosophers already possess plenty of light on the subjects dealt with), "though that does not mean that it will not be of interest to philosophers also. It should discuss on a philosophical background, vexed questions of conduct, in regard to which contemporary society is puzzled, doubting what is right and what is wrong, and should presumably at the same time suggest that *the answer to the philosophical problem has some relevance to these practical problems.*" So far, so good. But my trouble begins when I turn the pages back, and, rubbing my eyes, carefully read once more these words from the account of Professor Hallett's address at the annual meeting of the Institute of Philosophy: "Who would go to a philosopher for advice on—the relations of the sexes?" The hope raised by the language of Mr. Stocks is here dashed ruthlessly, and one wonders where the truth lies. Certainly it cannot be denied that the relations of the sexes constitute one of the most baffling and, I must add, dangerous problems of contemporary practical morality, and in its rough waters many thoughtful men and women are more or less helplessly struggling, having lost all faith in the dictates of traditional ethics and in the teaching of the Church, of which last I speak with the highest honour, for I am one of her loyal servants. But my eyes are not shut, and I know how deep the trouble is. I am, moreover, unwilling to accept the implication of Professor Hallett's question as the last word of the philosophers on this vital subject. I, therefore, make bold to ask you, Sir, whether you cannot invite some of them to give their views on this specific matter in your valuable pages, and thus provide, for many eager and anxious readers, some of that light that is, as Mr. Stocks hopefully and I believe rightly suggests, in the possession and at the disposal of philosophy.

HUGH GORDON ROSS.

4, CLIVE STREET,
DUNDEE, ANGUS,
October 10, 1935.

Remarks by the Chairman.

On receipt of the above letter the Editor, while considering it inadvisable to open a correspondence on the important problem it raises, has asked me, as Chairman of the Editorial Committee, if I have any comments to make upon it that might be of interest to readers. With regard to the contradiction which the writer finds between Professor Hallett and Professor Stocks as to the relevance of philosophy to practical problems, it need not be taken so seriously if, as I took it myself, Professor Hallett's statement be supposed to refer to particular problems in the life of an individual, while Professor Stocks refers to the general principle on which the solution of such problems should be sought. I do not think any of us would be prepared to exclude from the proper sphere of philosophy a subject which from the time of Socrates has exercised the minds and the pens of philosophers. If it finds itself helpless after all these centuries to say anything useful on one so fundamental as the relations of the sexes it would indeed be sentencing itself to futility. But it would be equally passing sentence on itself if it tried to treat of it in isolation from the principle which, from the beginning, the greatest philosophers, Plato and Aristotle perhaps more definitely than any before or since, laid down as the regulating one of any conduct which is truly human. Life, they taught, for a *man* differs from the life of an animal in being a fine art—the finest of all arts containing possibilities of "love and beauty and delight" denied to all lower creatures, yet only to be realized under one condition: that the animal instincts and passions should be treated as merely the materials of the art, the means through which man's essential humanity should find expression. Each of these instincts has its function and its place, but it can only perform its function and take its proper place, as a line or a colour can in a sculpture or picture, according as it is made to minister to the form and beauty of the whole. The sex instinct only differs from others in the dominating power it exercises owing to the load it has to bear in securing the continuance of the race and constituting the physical foundation of one of the highest forms civilization has hitherto achieved in the life of the Family. What has recently brought the problem of its regulation

into such prominence is a fact, at once menacing to social equilibrium and containing the hope of its re-establishment on a firmer basis than ever before. This is the new position that women are claiming for themselves to be individuals with personalities of their own, which they have the same claim as men to be free to develop to the limit of their capacities. It is a *menace* because, among other liberties, it means freedom to choose their own sex relations unhampered by older social (mainly masculine) "expectations" as to the form which these should assume. It is full of *hope* because it gives the clue to the regulation of this freedom in the spread of the sense among men and women alike of what is due to such personality. The principle was laid down by Kant, the greatest of modern moralists, in his celebrated maxim: "So act as to treat humanity whether in thine own person or in that of any other always as an end, and never as a means only." What Kant, as a typical son of the "age of reason," and with his Stoic distrust of feeling, failed to see was that the guarantee of obedience to this maxim was not the abstract reason, but that essentially rational emotion which we know as Love. Given love, in no merely sentimental or romantic sense, but in the sense of devotion to another for his or her own sake as an embodiment of humanity with all that this means, it may be seen to contain at once the only and the all-sufficient principle for the regulation of the sexual life whether inside or outside the bonds of matrimony. I have no space for the further development of this text. It is all the more unnecessary as it has recently been developed in a masterly way by a member of the Committee of the British Institute of Philosophy, Professor John Macmurray, in the seventh chapter of his book on *Reason and Emotion*. I venture, in conclusion, to quote a sentence or two from it which seems to me to sum up far better than in anything I could say the truth on the whole matter. After giving what is in effect a modern version of Kant's maxim, he goes on: "In all enjoyment there is a choice between enjoying the other and enjoying yourself through the instrumentality of the other. The first is the enjoyment of love, the second the enjoyment of lust. When people enjoy themselves through each other . . . they do not meet as persons at all; their reality is lost. They meet as ghosts of themselves, and their pleasure is a ghostly pleasure that cannot begin to satisfy a human soul, and which only vitiates its capacity for reality."

J. H. Muirhead.

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LECTURE COURSES for the Lent Term, Session 1935–36:—

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"OUTLINES OF MODERN PHILOSOPHY," a class by the Director of Studies, on Wednesdays, at 5.45 p.m., at University Hall, 14 Gordon Square, W.C. 1. The Class will be resumed in the Lent Term on Wednesday, January 22nd.

The EVENING MEETINGS for the Lent Term of the Session will be held at University College, Gower Street, W.C. 1, at 8.15 p.m., on the following dates:—

Tuesday, January 14th: "God and the Ultimate Values." The Very Rev. W. R. Matthews, K.C.V.O., D.D., D.Lit. (Dean of St. Paul's).
Tuesday, February 11th: Subject to be announced later. The Rt. Hon. H. A. L. Fisher, D.C.L., D.Litt., LL.D., F.R.S., F.B.A.
Tuesday, March 10th: "Vice and Illusion." Professor Gilbert Murray.

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CONTENTS

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CONTENTS

PAGE

I. THE PLACE OF MYTH IN PHILOSOPHY: The Very Rev. W. R. Inge, K.C.V.O., F.B.A., D.D., D.Litt. 131

II. THE STUDY OF ECONOMIC ACTIVITY: T. M. Knox, M.A. . . 146

III. THE INTEREST THEORY OF VALUE: A. Campbell Garnett, M.A., Litt.D. 163

IV. PHYSICAL INFLUENCE AND MENTAL REFERENCE: Professor C. Lloyd Morgan 176

V. PHILOSOPHIC HISTORY AND PROPHECY: Hilda D. Oakeley, M.A., D.Lit. 186

VI. ON ABSTRACT ART: Ivan W. Brooks 195

VII. PHILOSOPHICAL SURVEY:
PHILOSOPHY IN ITALY 203

VIII. NEW BOOKS 207

IX. NINTH INTERNATIONAL CONGRESS OF PHILOSOPHY . 250

X. CORRESPONDENCE 251

XI. INSTITUTE NOTES 253

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